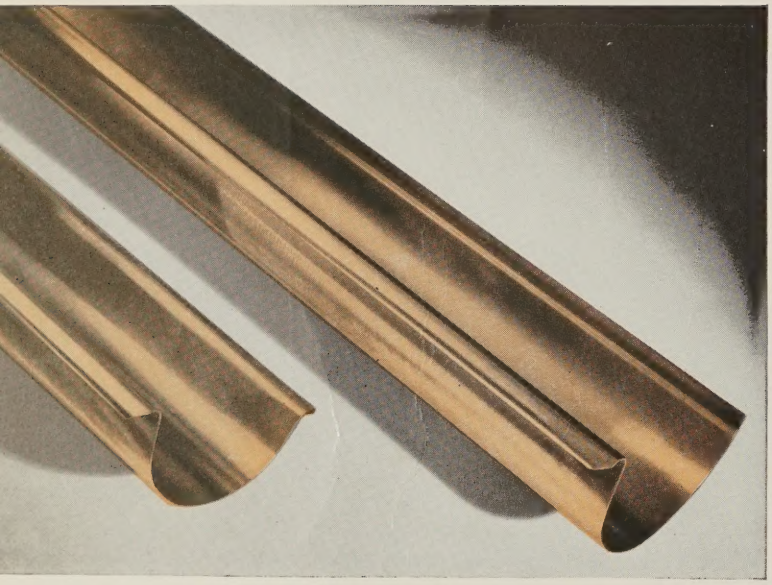
CHASE *Copper*

ROOFING PRODUCTS

for ROOFERS

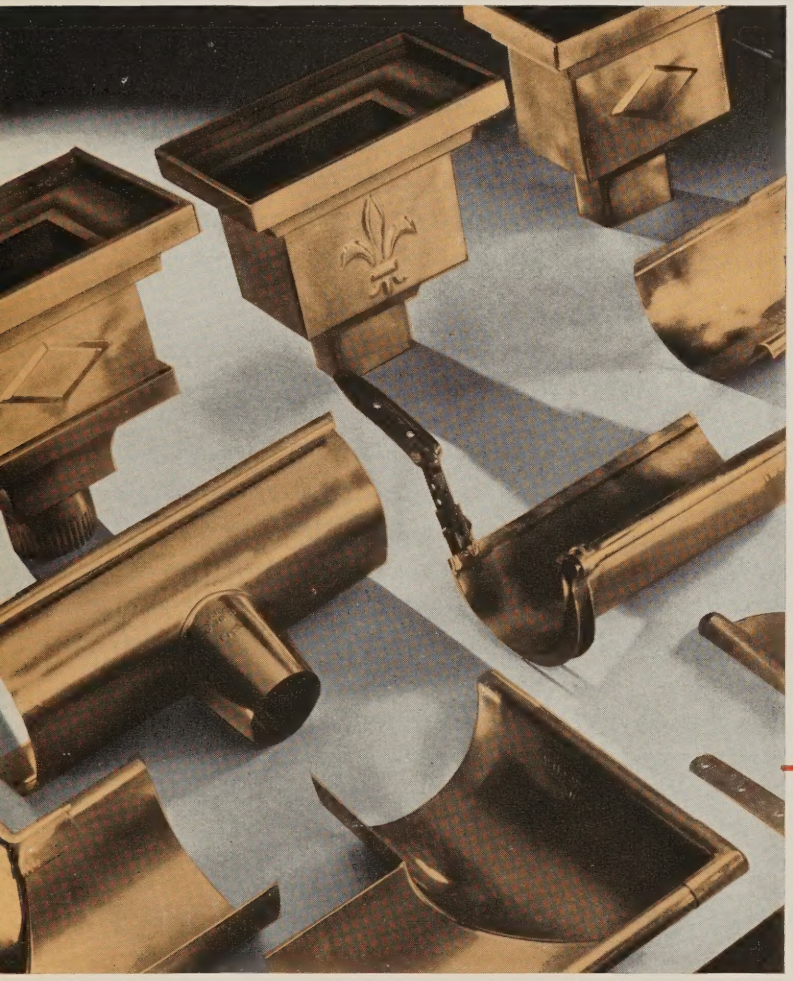
AND *ARCHITECTS*

A.I.A. File No. 12-i



CHASE®

Copper Roofing Products



CHASE

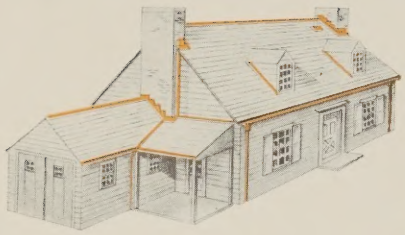
CHASE BRASS & COPPER CO.

—INCORPORATED—

Subsidiary of Kennecott Copper Corporation

WATERBURY CONNECTICUT

A Quick Review of this Book .....



Copper Roofing Products

This book includes illustrations and dimensions of standard copper roofing products usually carried in stock for immediate shipment, as well as information about special items which can be made to order within a few days. There is a section on rain-carrying equipment such as downspout heads, downspouts, gutters, elbows, shoes, end pieces and outlets. Also a list of standard sizes and weights of sheet, roll and strip copper for roofing work and descriptive information on special copper products such as Cop-O-Top (a copper membrane flashing) and Thru-Wall Flashings.

Helpful Information

In addition to illustrations and list prices we have included wherever possible additional information that may prove helpful to Architects, Roofing and Sheet Metal Contractors. This information includes standard sizes, standard packing, suggested applications, detail drawings showing typical installation problems, and drainage data to help in selecting the proper size gutters. This catalog combines much of the data we have published from time to time on downspouts and gutters, Cop-O-Top, Thru-Wall Flashing and sheet and roll copper.

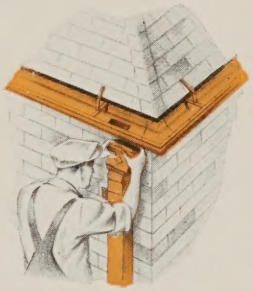
Other Chase Products for Roofers

Supplementing our regular line of Chase Copper Roofing Products, for the convenience of our customers, we also carry many accessory products used by the roofing and sheet metal industry. These products include bronze gutter hangers and downspout hooks, snow guards, ridge roll clips, all types of nails, bolts and nuts, rivets and burs, brass and copper wire cloth, solder, soldering coppers and copper hammers. We have included illustrations of these products and wherever possible we have suggested types and styles to be used under typical conditions.

How this Book can Help.....

The Roofer

This book will serve the Roofer and Sheet Metal Contractor as a handy reference to the Chase line of Copper Roofing Products. It outlines the items that are usually carried in stock and those that must be made to order. This information is important to know before submitting estimates or making promise dates on a job. This book also includes standard sizes and weights of sheet and roll copper for roofing work and descriptive information and installation details covering special Chase products that are helpful when working with these products for the first time.



The Architect

When writing Copper Roofing Products into building specifications it is important to know the types and styles available. By specifying standard designs you can save money for your client and usually be sure of delivery when you need it. You will notice from the illustrations in this book that the Chase line of Copper Roofing Products is designed to harmonize with most types of architecture. We have also included roughing in dimensions and suggested specifications for special products such as Cop-O-Top and Thru-Wall Flashings.

Chase Warehouse Service

In 23 Chase warehouses in 23 cities throughout the country there are usually large stocks of brass and copper products. These convenient stocks make it possible for us to give the Roofing and Sheet Metal Industry excellent service on standard sizes and types of copper roofing products. In normal times you'll find that we can give you immediate deliveries on downspouts, gutters, sheet and roll copper and miscellaneous items such as solder, soldering coppers, nails and rivets and burs. The Chase warehouses are listed on pages 42 and 44.

Proportioning Gutters, Leaders and Outlets

Two main factors govern roofing drainage problems: (1) The greatest amount of rain which the roof will be required to take care of at a given time. (2) The actual area of the roof that is being drained.
In residential construction where an infrequent overflowing of the drainage system will not seriously damage the building, a smaller rain intensity value may be used in determining the size of downspouts and gutters. In larger stone buildings it is best to use the greatest recorded rain intensity in figuring, since an overflow may cause serious damage.
The general rule to follow is 1″ square downspout area for every 100 square feet to be drained.

General Pointers

1. 3″ round or square corrugated downspouts should be the minimum (except for small porches).
2. 75′ maximum spacing of downspouts is recommended.
3. The size of the gutters depends on:
   a. Number, size and spacing of outlets.
   b. The slope of the roof.
   c. The style of the gutter used.
4. A gutter smaller than 4″ wide should be avoided.
5. A gutter should pitch at least $\frac{1}{16}$″ per foot toward the outlet.
6. Half-round gutters are economical and properly proportioned.
7. The ideal gutter should have a depth equal to one-half or three-quarters of the width of the gutter. Deeper gutters will allow the water to freeze and distort the gutter.
8. For half-round gutters, outlets should be as long as the gutter width and two-thirds as wide. For rectangular gutters 6″ wide or less, the outlet should be about 2″ less in width than the gutter, and of the same length as the gutter width.
9. Outlets should be placed as near to the corner of the building as possible so that water will not be required to flow far beyond a sharp turn.

Working Problems

The table below and the table and charts on the next page will aid the roofer in figuring the sizes of gutters and leaders. Two average problems are also given.

Example: To find size of gutters

A roof area 40′ long x 20′ wide in Atlanta, Georgia, is to be drained by a rectangular gutter. Depth of gutter — ½ of width.

Solution

In Table II on next page the maximum rain intensity in Atlanta is 9″ per hour. From the proportions of the gutter, m = 0.5 (Depth divided by Width). On Chart 2, page 5, find L = 40. Pass vertically to the heavy line representing m = 0.50, and horizontally left, read N = 23.3.
The rainfall intensity (I = 9) times the area (A = 800) gives IA = 7200. From Chart 3 locate N = 23.3 at the bottom side and pass vertically to the horizontal line representing IA = 7200. The point of intersection falls between the lines representing width of 6″ and 7″. The required gutter width is therefore 7″.

Example: To find size of leaders

A building in Boston is 120′ x 80′ with a plain gable roof having a ridge down the center and a slope of 9″ to the foot. There will be a leader at each corner and one overflow in 10 years can be allowed.

Solution

If slope is 9″ per foot, the roof area on each side of ridge is 120′ by 50′ or 6,000 square feet. (From $\sqrt{40^2+30^2}=50=$ Side of Slope). Each leader would serve 3,000 square feet.
From Table II, Column B, 200 square feet is amount of roof area which 1 square inch of leader will serve. Therefore a leader having area of 15 square inches is required.
From Table I — 5″ round leader or 5″ square corrugated or 4 x 5 plain square leaders could be used.

Table I — Area of Standard Size Leaders

Type	Area in Sq. In.	Nominal Leader Sizes
Plain Round	7.07	3″
	12.57	4″
	19.63	5″
	28.27	6″
Corrugated Round	5.94	3″
	11.04	4″
	17.72	5″
	25.97	6″
Square Corrugated	3.80	2″
	7.73	3″
	11.70	4″
	18.75	5″
Plain Rectangular	3.94	1¾″ x 2¼″
	6.00	2″ x 3″
	8.00	2″ x 4″
	12.00	3″ x 4″
	20.00	4″ x 5″
	24.00	4″ x 6″

Table II — Rainfall and Drainage Data

	(A) Storms Which Should Be Exceeded Only Once In 5 Years		(B) Storms Which Should Be Exceeded Only Once In 10 Years		(C) Maximum Recorded Storms	
	Intensity in Ins./Hr. Lasting 5 Minutes	Sq. Ft. of Actual Roof Drained per Sq. In. of Leader Area	Intensity in Ins./Hr. Lasting 5 Minutes	Sq. Ft. of Actual Roof Drained per Sq. In. of Leader Area	Intensity in Ins./Hr. Lasting 5 Minutes	Sq. Ft. of Actual Roof Drained per Sq. In. of Leader
Albany	6	200	7	175	7	175
Atlanta	7	175	7	175	9	130
Boston	5	240	6	200	7	175
Buffalo	5	240	5	240	10	120
Chicago	6	200	7	175	7	175
Detroit	6	200	6	200	7	175
Duluth	5	240	6	200	7	175
Kansas City	7	175	8	150	10	120
Knoxville	5	240	6	200	6	200
Louisville	6	200	7	175	8	150
Memphis	5	240	6	200	10	120
Montgomery	7	175	7	175	7	175
New Orleans	7	175	7	175	8	150
New York City	6	200	8	150	9	130
Norfolk	6	200	7	175	8	150
Philadelphia	6	200	7	175	8	150
Pittsburgh	6	200	6	200	7	175
St. Louis	6	200	8	150	11	110
St. Paul	6	200	6	200	8	150
San Francisco	2	600	2	600	3	400
Savannah	6	200	7	175	8	150
Seattle	2	600	2	600	2	600
Washington	6	200	7	175	8	150

Chart 1

Semi-circular Level Roof Gutters
Width of gutters required for given roof areas and rainfall intensities.

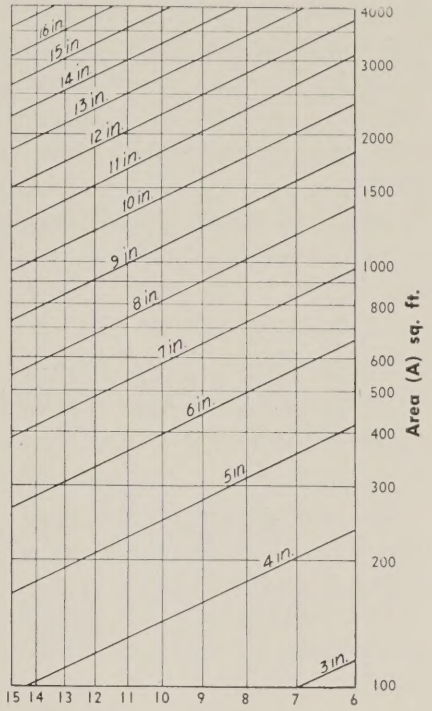


Chart 2

Rectangular Level Roof Gutters
Width of Gutter required for given roof areas and rainfall intensities. See also Chart 3.
The quantity (m) gives the proportions of the cross-section. m=depth of gutter divided by width of gutter.

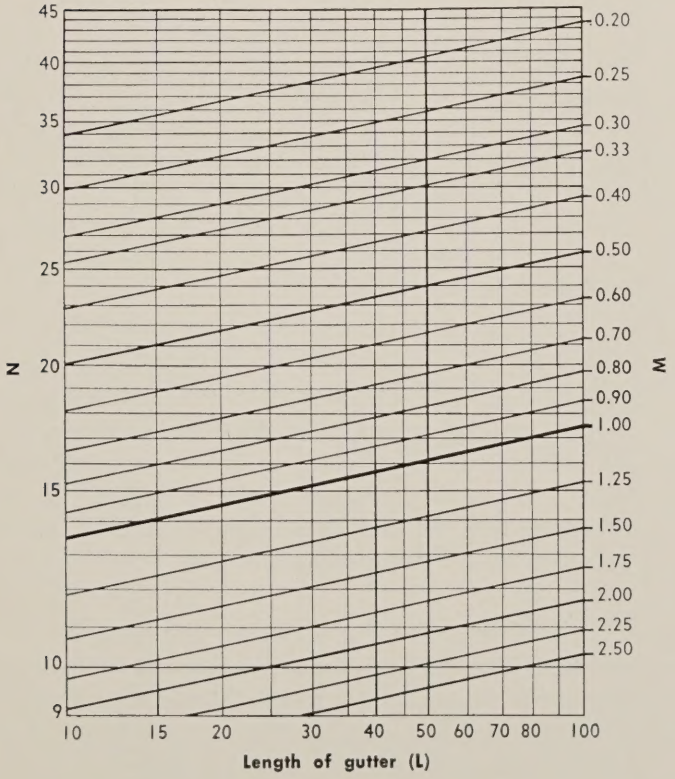
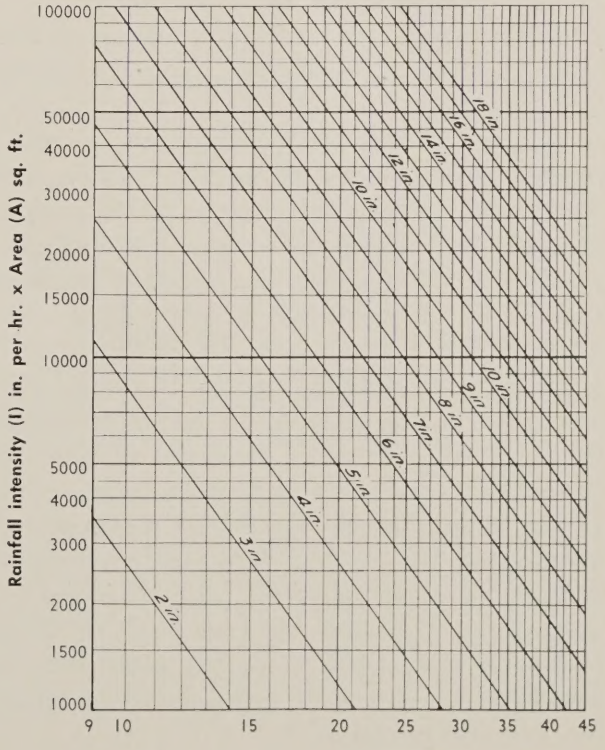


Chart 3

Rectangular Level Roof Gutters
Width of Gutter required for given roof areas and rainfall intensities.



Facts About Flashing

The following paragraphs contain information on two types of flashing, the thru-wall type of flashing and the membrane type of concealed flashing. Architects, builders, engineers, general contractors, sheet metal men and waterproofing contractors have been subjected to a barrage of claims concerning the use of various types of flashing, and the relative advantages of each. We offer the following facts as a guide for the individual or firm whose responsibility it is to provide for the permanent, effective waterproofing of a structure at the most economical cost:

Why Thru-Wall Flashing Is Needed

Parapet walls are the result of a trend in building design for greater architectural beauty, for conformity with fire regulations, and for greater height. However, this type of construction presents a structural problem, since the entire perimeter of the building is virtually without a roof. Masonry walls, in themselves, are not waterproof, and unless properly flashed will be subject to masonry leaks and efflorescence. Tests made by various research laboratories have shown that the richness of the mortar has no bearing on leakage or permanence of bond. In fact, some specimens which were tested had mortar strong enough to break strong brick, and yet were found to be porous to rain water at the interface between the mortar and the brick.

Entry of moisture into and through the wall, in addition to causing unsightly stains both inside and outside the building, is a basic defect of construction leading to expensive maintenance and repair problems.

Materials Used for Thru-Wall Flashing

Felts and Fabric Flashing

Bituminous membrane flashing, although lower in first cost than sheet metal, cannot withstand the elements to which they are subjected. Being in constant contact with dampness, a molding process causes them to rot out rapidly. There exists the danger of seepage of the asphalt through the masonry during summer's heat. If used as a cap flashing, the exposed portion of the fabric, turned down at a 90° angle, will dry out under the sun and will break at the point of bend, causing leaks. The load of the wall also places stresses on this type flashing that will cause it to fail. Since this type flashing cannot be securely attached to exposed horizontal wood, stone, brick, or terra cotta, it should not be used on the top of projecting cornices or projecting belt courses. If used under copings, provision must be made for dowels to anchor the coping to the parapet, since felts and fabrics destroy the bond between the coping and the parapet.

Iron Flashing

The use of tin coated iron, galvanized iron, lead coated iron, asbestos protected iron, and copper bearing iron as thru-wall or concealed flashing should be avoided. These materials cost much more than felt or fabric and they are usually subject to severe and rapid corrosion.

Lead Flashing

We believe lead should not be used for thru-wall flashing unless the lead has been completely covered on both sides with a bituminous waterproofing compound. Studies reported by the British Building Research Station reveal that lead is attacked by cement mortar and by fresh lime mortar. In addition, lead usually costs more to install than copper.

Zinc Flashing

We would not recommend zinc for thru-wall or concealed flashing purposes because it is also attacked by alkaline solutions. In addition, it is brittle and often breaks when it is bent.

Aluminum Flashing

Aluminum is readily attacked and corroded by the alkalis contained in cement, mortar and concrete. Since this corrosion will be most severe when these materials are moist, we believe aluminum should not be used for thru-wall flashing.

Other Corrosion-Resistant Metals

All other corrosion-resistant metals cost a great deal more than copper. As thru-wall or concealed flashing made of these metals have little or no advantage over copper flashing, it is not practical to use these metals for flashing purposes.

Copper Flashing

The most important requisite of thru-wall flashing material is that it be resistant to rust and corrosion, because thru-wall flashing, once built into the wall, cannot be replaced when worn out or corroded, without tremendous expense.

In the light of this fact, copper is found to be the best material for use as thru-wall flashing.

Copper has a much greater resistance to corrosive action from cement, concrete, mortar or other alkaline materials than the other metals sometimes used for flashing purposes, and is therefore to be preferred to such materials. Copper is tough and will stand a good deal of abuse during construction without being damaged. Copper is very flexible and may be bent many times in the same place without breaking.

In recommending copper for thru-wall flashing, the same consideration that applies to other copper roofing and building products holds true: **Use material which, through experience as well as analysis, is known to be best.**

The Best Type of Thru-Wall Flashing

Copper thru-wall flashing, to provide maximum efficiency, should embody all the following features:

1. A mechanical key bond that resists movement in all three directions — vertical as well as lateral. Tremendous forces are exerted to weaken or break the bond of a wall, among which are expansion and contraction, the movement of the building due to settlement or vibration, high winds, etc.

2. A design that provides fast, positive drainage of all moisture that enters the wall above the flashing. The flashing design should never permit water to back up and remain in the wall. This might lead to freezing and the consequent expansion could throw the wall out of line. The flashing design should never let water run along the flashing and seep through the lap down into the wall.

3. An end design that permits the flashing to lap together at the ends, joining the lengths watertight without soldering.

4. A design that enables the forming of a rigid counterflashing that hugs the parapet wall tightly to provide a watertight cap flashing.

5. The ability to be formed and shaped by the sheet metal contractor with standard equipment at the time of installation to fit the job to perfection. It should be the responsibility of the sheet metal contractor to install thru-wall flashing properly, and the specifications and contracts should be written accordingly. The material should be designed by the manufacturer to provide all the features mentioned above, but any further fabrication of the material necessary to provide an efficient finished job in accordance with the specification and design should be done on the job, by the roofer or sheet metal contractor. The so-called preformed thru-wall flashings, while in some cases slightly easier to install, are considerably more costly and do not allow the sheet metal contractor the flexibility needed to provide an installation that fits the job to perfection.

Chase Thru-Wall Copper Flashing meets the five essentials outlined above. Detailed drawings and descriptions appear on the following pages of this brochure, demonstrating the exact manner in which Chase Thru-Wall Flashing performs the necessary functions of such material, as well as other features which add to the convenience of purchasing and installing Chase Thru-Wall Flashing.

THRU-WALL FLASHING

THE BEST TYPE OF FLASHING (CONT.)

Cost of Copper Flashing

At this point it seems advisable to discuss the cost of copper thru-wall flashing in relation to the efficiency and service it provides. Copper being a comparatively higher priced metal, builders naturally expect the most for their money when it is specified, and are understandably averse to paying unduly high prices for a product, which by its nature is comparatively expensive. In the light of this fact, it is the responsibility of the manufacturers of copper thru-wall flashing to make this product available to the construction industry at as reasonable a price as possible, thus permitting its installation universally, even on projects where first cost is a major consideration, and where expensive thru-wall flashing might be excluded due to a limited budget. By keeping the cost of the material at a fair level, then, the manufacturers of copper thru-wall flashing permit the wider use (and benefit) of copper in building construction. To this end, Chase Thru-Wall Flashing is furnished in the most efficient form to provide economy of first cost, so that the architect can specify, and the sheet metal contractor can install Chase Thru-Wall Flashing and be assured of deriving all the benefits of the material at the most reasonable price.

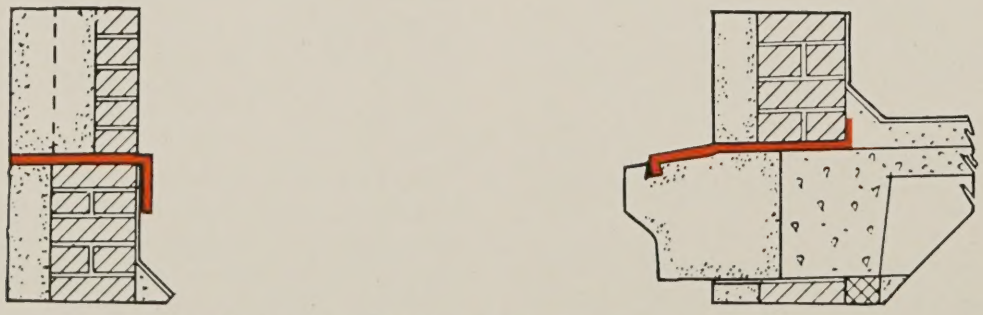
With relation to cost, also keep in mind the relationship of the cost of the flashing to the cost of the building. It will be seen that although 16-ounce copper may cost considerably more than a thin gauge copper, the difference in cost may add very, very little to the overall cost of the building. Another point to keep in mind is the fact that when using 16-ounce copper, the owner receives more copper per dollar and therefore more protection per dollar than he does if copper of lighter gauges is used. The cost of thinner copper is less per square foot than that of 16-ounce copper but its cost per pound is higher. For example, the cost of Chase 10-ounce copper 3-way bond flashing is approximately 25% less than the cost of Chase 16-ounce copper 3-way bond flashing, but it is 37½% thinner than 16-ounce.

Recommended Weight of Thru-Wall Flashings

Thru-wall flashings are installed in some locations of the building entirely concealed within the wall, and in other places extending through and beyond the wall. This latter installation, obviously, leaves the metal exposed to the elements, and to atmospheric conditions, and for this reason it is our earnest and urgent recommendation that copper not lighter than 16-ounce be specified and installed wherever the flashing is partially exposed outside of the wall. The architect and the owner should give serious consideration to relationship of the cost of the thru-wall flashing to the overall cost of the building, and realize that any difference in the first cost will be more than offset by the increased protection that 16-ounce copper thru-wall flashing will afford.

Flashings that are completely enclosed by the masonry wall and therefore not subject to impingement and erosion by the weather may safely be lighter than 16-ounce. For this purpose, Chase Thru-Wall Flashing is also furnished in 10-ounce thickness. This material incorporates all the advantages of design and convenience offered in Chase 16-ounce Thru-Wall Flashing, and is offered where the protection of copper is desired at a cost lower than that of 16-ounce.

Also available for concealed flashing is the copper membrane type of material, and the relative merits of this product are discussed in the following section.



Flashing Going Through and Extending Beyond the Wall

The Necessity of Concealed Flashings

Many locations in both residential and monumental construction constitute "weak spots" where the passage of time and the structural settlement of the building would permit the entry of moisture if proper precautions were not taken against this at the time of construction. Such locations are around window heads and sills, over lintels, around foundations, under veneer or siding and in steel frame buildings, around spandrel beams. Copper makes an ideal material for flashing these locations.

16-ounce copper is, of course, the ideal substance for this purpose; however, less expensive forms of copper flashing are available for such requirements. In addition to 10-ounce thru-wall flashing, the membrane type of flashing is offered. Such flashing is made in thicknesses of copper ranging from one ounce to seven ounces, with a backing of paper, fabric, or mastic, on one or both sides of the copper. This article is not concerned so much with the advisability of using such membrane flashing, since the construction industry recognizes the advantage in service and economy that it offers; rather the relative merits of the various types of membrane flashing are worthy of consideration to determine the product which offers the most advantages at a reasonable price.

Concerning the material used as a backing for the copper membrane, it should be noted and remembered that in the long run it is the **copper** that will do the waterproofing job. Granted that during the first few years of the building's life, the protective compounds will repel moisture, the substance that keeps the edifice watertight for its entire life will be the copper. For this reason, we feel that a Kraft paper, creped to allow for expansion and thoroughly impregnated with asphalt, inseparably bonded to only one side of the copper, will fulfill its purpose which is to protect the thin copper membrane from puncturing, kinking, or tearing during installation. Any additional device or substance to "protect" the copper is unnecessary, and merely builds up the expense of the product which is entirely unjustified performance-wise. An expenditure for copper flashing should bring the maximum amount of copper to the job.

The weight of concealed flashing should also be considered with care. The fact that the copper is entirely protected from the elements makes it permissible to use a much lighter gauge of metal than could be specified safely for an exterior installation. If the expense of copper membrane flashing, as heavy as 5-ounce or 7-ounce, can be justified, consideration should be given to the alternate use of 10-ounce thru-wall flashing, which offers an obviously greater amount of protection at a competitive price. In our opinion, a membrane flashing entirely concealed need be no heavier than 3-ounce to perform satisfactorily.

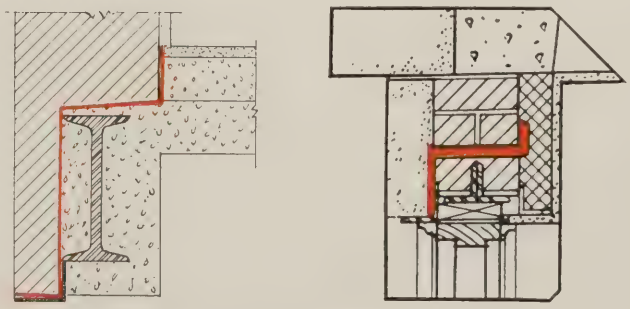
Some concern has been expressed about the bonding qualities of concealed copper membrane flashing. Since these flashings are entirely surrounded by masonry, and are shaped in varying planes to fit the contours of the detail, their rigidity or bonding devices are not as important as that of thru-wall flashings installed in parapets, or going beyond the building wall. Here again, the copper is installed primarily for the purpose of waterproofing, and has little or no structural significance, thus obviating the necessity of a mechanical key or a "protective" substance with a rough surface for bonding purposes.

Cop-O-Top

Chase Cop-O-Top is copper manufactured in thicknesses of 1-ounce, 2-ounce, and 3-ounce, backed on one side with 1, 2, or 3 plies of 45-pound asphalt impregnated creped Kraft paper. Available in standard widths up to and including 60", it offers the protection of copper for concealed flashing at an extremely economical price. Since the creped paper allows expansion, Cop-O-Top may be handled freely during installation without kinking, tearing, or puncturing the material. By the same token, the backing is not so tough as to make the material difficult to cut, or so bulky as to make it difficult to form at the time of installation.

The relationship of cost to efficiency, as in the case of thru-wall flashing, merits careful attention and here again the ideal substance is that which is designed to perform most effectively at the lowest cost to provide in every possible case the protection that copper affords.

Chase Cop-O-Top is a product that meets all the above qualifications.



Flashing Entirely Concealed in the Wall

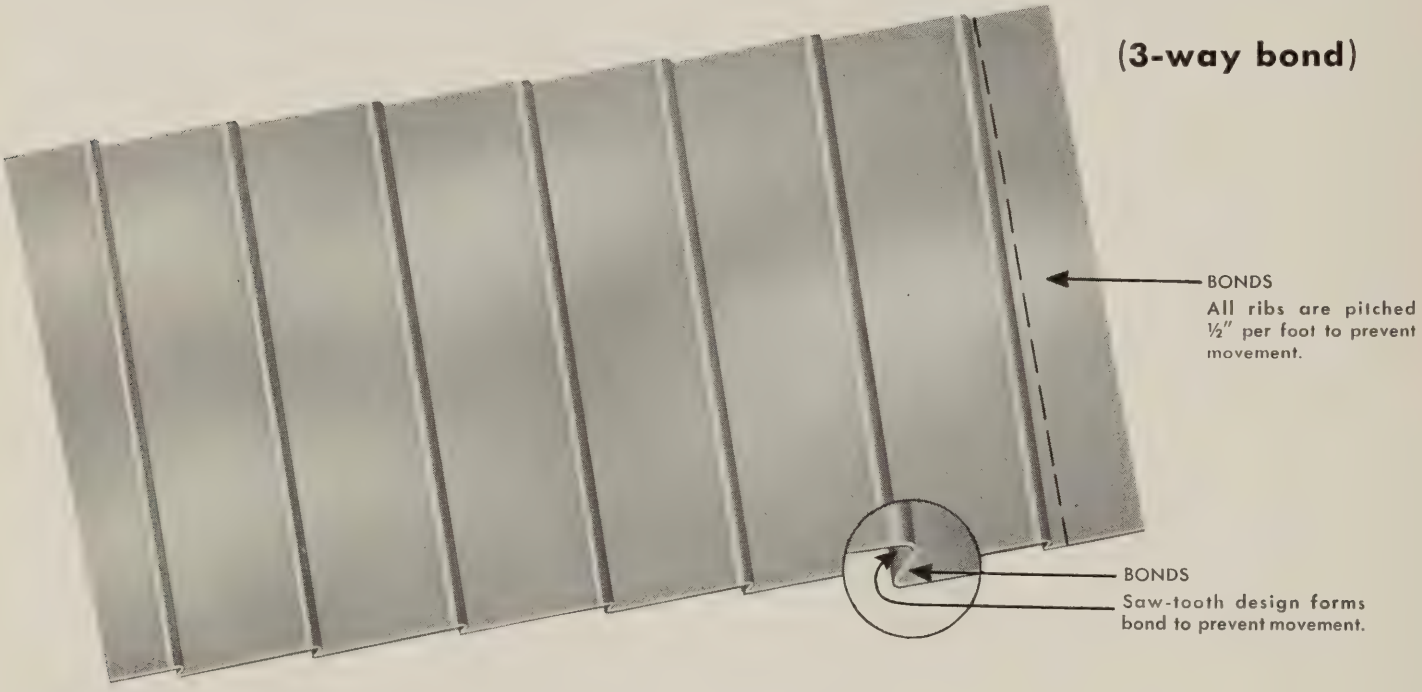
Chase Thru-Wall Copper Flashing

The New Chase Thru-Wall Flashing is designed to prevent:

1. Leaks and seepage in the building walls.
2. Streaks, stains and efflorescence which so often disfigure a building
3. The rusting of spandrel beams.

The saw-tooth corrugation of Chase Thru-Wall Flashing is a feature that binds the masonry both laterally and vertically in every direction and, in addition, provides channels that drain the walls quickly. The design of the flashing also takes care of expansion and contraction.

(3-way bond)

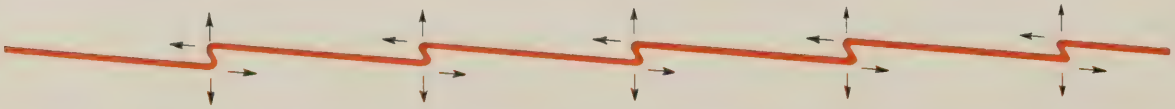


Features of Chase Thru-Wall Copper Flashing . . .

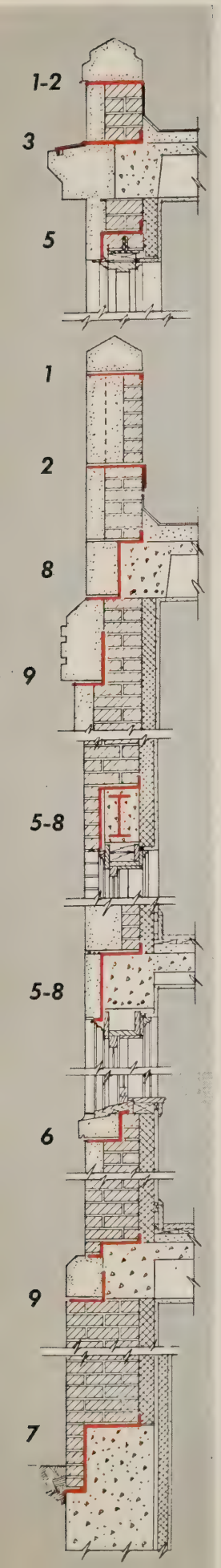
1. Saw-tooth corrugations that form a mechanical key bond in the mortar — vertically as well as laterally.
2. Perfect drainage so that, if moisture should penetrate a wall, it will drain quickly.
3. It provides for expansion and contraction.
4. An interlocking overlap that requires no soldering.
5. A stiff counterflashing face that hugs the wall tightly after the base flashing has been installed.
6. It may be readily bent by the Sheet Metal Contractor.

Convenient Size . . . Chase Thru-Wall Flashing comes in sheet form in standard widths up to and including 34" wide and in 6-ft. lengths. These sizes result in the most economical installation costs.

Economical . . . Chase Thru-Wall Flashing is reasonably priced and economical to use. The interlocking "Saw-tooth" feature makes a watertight joint without the use of solder.



BONDS IN ALL DIRECTIONS—LATERAL AND VERTICAL



WHERE THRU-WALL FLASHING IS NEEDED

1. UNDER COPING STONES

Thru-Wall Flashing should be used under coping stones, as all stones are porous and the stones themselves expand and contract opening up cracks at the joints. Thru-Wall Flashing under the coping stones, therefore, not only bonds the stones to the wall without the use of dowels, but also prevents the moisture from getting through into the wall itself.

2. JUST ABOVE ROOF LINE

Thru-Wall Flashing should be used just above the roof line to continue the roof to the outside faces of the building on all sides.

3. OVER TOP OF CORNICES

Thru-Wall Flashing should be used over the tops of wide stone cornices; that is cornices extending out from the wall 18" or more. On narrower cornices it should be used under the cornice. Flashing is necessary at this point because of the porosity of the stone and the fact that the stones expand and contract, opening up the vertical joints and allowing moisture to enter.

4. THROUGH PENTHOUSE AND RISING WALLS

Thru-Wall Flashing should always be used entirely through penthouse walls and all rising walls above roofs at a point just above the roof line.

5. OVER DOORS AND WINDOWS

Thru-Wall Flashing should be used over the heads of all windows and door openings to prevent the moisture that enters the wall from above from working down by gravity to the inside of the building.

6. UNDER WINDOW SILLS

Thru-Wall Flashing should be used under stone or brick window sills which are porous and which become saturated after continued rain.

7. OVER CONCRETE FOUNDATIONS

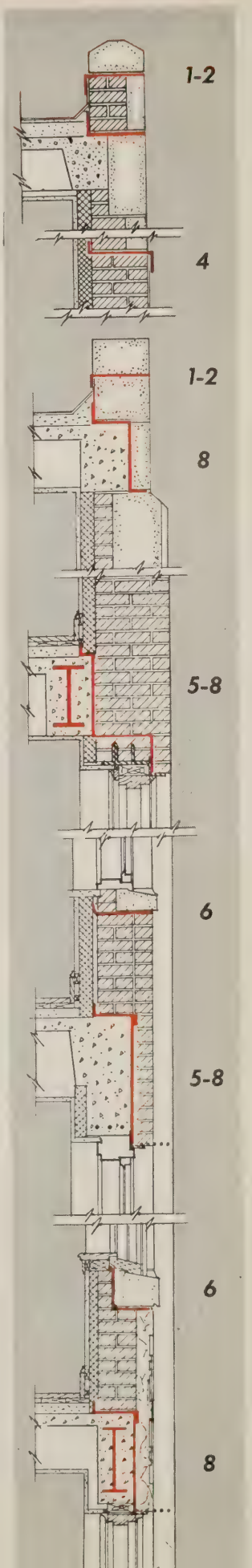
Thru-Wall Flashing should be used over concrete foundations where the first crosses of stone or brick start upward, to prevent moisture from coming up into the walls from below by capillary attraction.

8. AT ALL SPANDREL BEAMS

Thru-Wall Flashing should be used in all spandrel beams to keep moisture away from the steel, to keep moisture from running in at the floor line, and to keep moisture away from window heads below.

9. AT PROJECTING BELT COURSES

Thru-Wall Flashing should be used in all projecting belt courses where moisture tends to enter at the horizontal mortar joints as well as through the vertical joints of the stone and through the stone itself.



HOW TO INSTALL THRU-WALL AND CONCEALED FLASHING

Regardless of the kind of material you use, leaks will occur if the flashing is not properly designed and properly installed. Here are a few general principles that should be followed:

(A) Thru-wall flashing should always be set in a bed of mortar having the mortar over and under the flashing. This mortar should slope toward the outside; that is, in the direction it is desired to drain the water.

(B) All sheet metal flashing should be furnished by the Sheet Metal Contractor and installed by sheet metal mechanics.

(C) If plain copper or crimped copper is used, the joints should be lapped and soldered or locked and soldered.

(D) At columns and pipe chases, the flashing should be turned up about 1" and the corners of the turned up portion should be soldered.

(E) Cap flashing at wall should turn up about 1" on the inside of the wall, extend through the wall and down at least 4" over the base flashing.

(F) Cap flashing at parapets should start from the exterior face, (or be turned down about ½" on the outside) extend through the parapet and down at least 4" over the base flashing.

(G) Cap flashing at chimneys should turn up about 1" inside the flue lining, extend to the outside of the chimney and turn down at least 4" over the base flashing. All joints in this flashing should be soldered.

(H) Flashing under copings should extend from the exterior face of the parapet to the interior face or should be turned down about ½" on each side.

(I) Flashing over cornices or belt courses should turn up about 1" inside the wall, extend through the wall and out over the entire width of the cornice and turn down with a drip edge. On wide cornices, the flashing on the projecting part should turn up at the exterior face of the wall and the thru-wall flashings should turn down over same as a cap flashing.

(J) Flashing under belt courses should turn up about 1" behind the belt course and extend out to the exterior face of the wall or should be turned down on the exterior face about ½".

(K) If copper flashing other than Chase Thru-Wall Flashing is used over windows, doors, etc., or under sills, the ends should be turned up about ½" and the corners of the turned up portion should be soldered.

(L) Flashing under sills should turn up 1" inside the wall and extend to the exterior face of the wall or should be turned down on the exterior face about ½".

(M) Flashing over lintels, spandrel beams, and beams that end in the wall should turn up about 1" on the inside face of the wall, extend through the wall to the outside of the beams, then down to the bottom of the beam and then out to the outside face of the wall. At lintels it should be turned down on the outside to form a drip.

(N) Flashing between the top of concrete foundation wall and the bottom of masonry building walls should turn up about 1" inside the wall and extend through the wall to the outside face.

(O) Copper should not be placed in direct contact with steel.

(P) In any location where water can drip from copper on to stone, terra cotta or painted surfaces, the copper should be lead coated.

We hope that these pointers on the specification and use of thru-wall and concealed flashing will give Architects and Engineers and Roofing Contractors a better understanding of the purpose of thru-wall flashing and the material that should be used. We also hope that this information will enable Architects to write more definite specifications on their flashing requirements. Experience has proven that the Architect can be assured of getting what he wants only when materials are accurately and definitely specified. There are a great many flashing problems that require special consideration. Therefore, please feel free to consult with us on any flashing problem you encounter.

Specifications for Architects

All flashing through masonry walls shall be Chase Thru-Wall Flashing as manufactured by the Chase Brass & Copper Co. Flashing shall be of 16-oz.* soft copper formed into a series of ribs shaped to a "saw-toothed" design at intervals of not more than 3½" and pitched ½" per foot so as to provide a mechanical key bond in all directions. End joints shall be interlocking and overlap at least 3" so that a watertight joint is made without soldering.

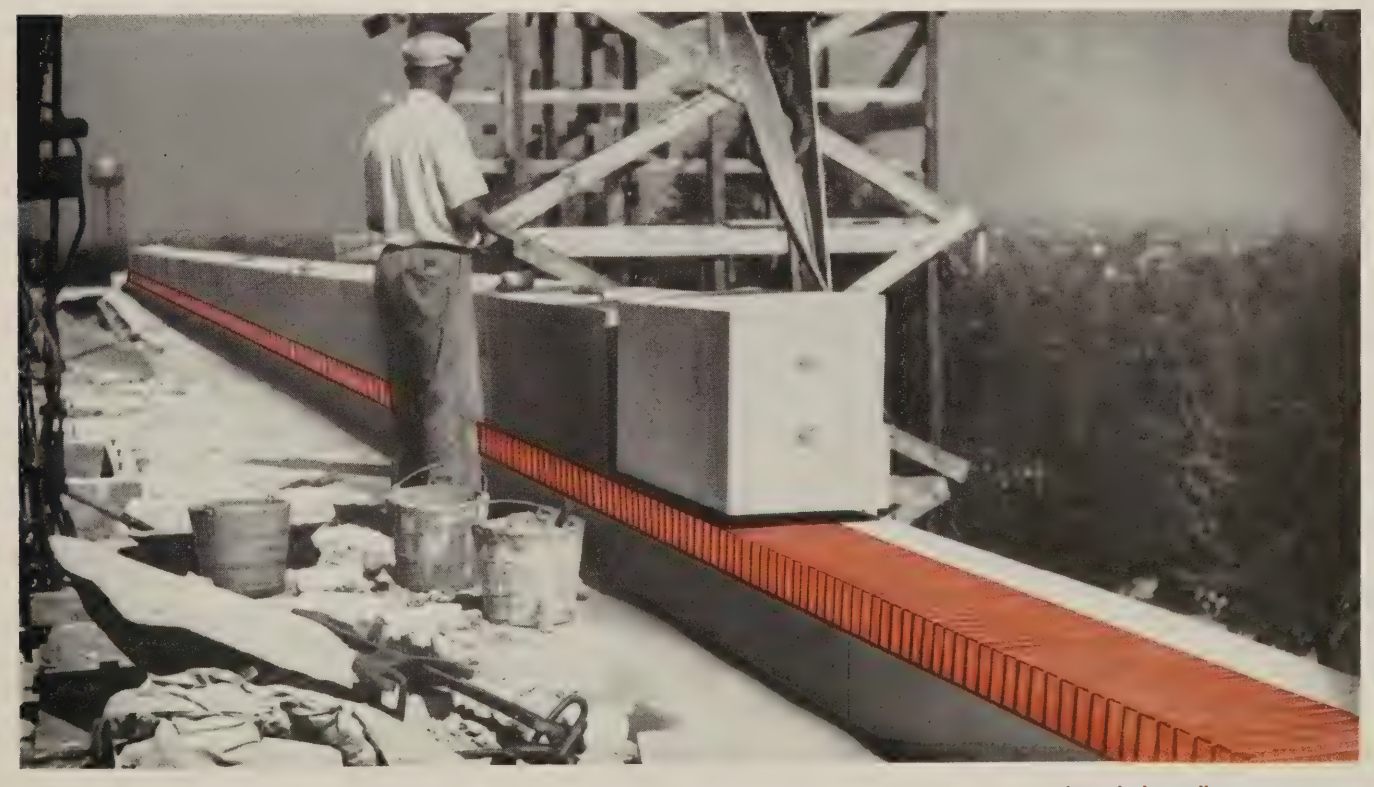
*Many architects, in cases where the building budget would not permit the use of Chase 16-oz. Thru-Wall Flashing, have felt it necessary to substitute a membrane flashing (with or without very thin copper as part of the flashing) to obtain a reduced cost. Chase offers Thru-Wall Flashing made of 10-oz. copper at a price approximately at the same level as most membrane flashings for use where the building budget will not permit the use of full weight 16-oz. copper.

General Data for Thru-Wall Flashing

Flashing shall be provided below the parapet copings for counter flashing in masonry parapets and where low roofs abut the superstructure and elsewhere as indicated on drawings.

Flashing shall be placed in wall as work progresses with full bed of mortar below and on top. It shall be placed with corrugations at right angles to the wall and extend the full thickness of the wall to within ½" of the exterior face with the exposed edge, unless otherwise indicated, turned up about ¼" to turn seepage water to the roof.

Where the back edge of the masonry joint will be exposed in the finished work, the flashing shall be turned down at this point as indicated. Where the back edge of the masonry joint will not be exposed in the finished work, the flashing shall be turned up at least 2" on the unexposed face, and the outer edge of the flashing shall be left flat or shall be turned down to form a counter flashing where so indicated.

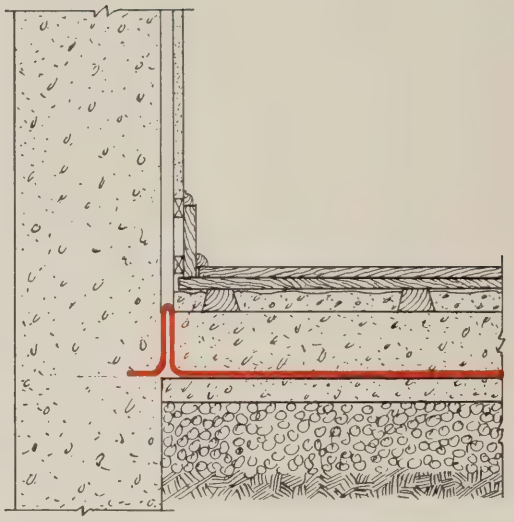


Chase Thru-Wall Flashing being installed under coping stones to prevent moisture from seeping through the wall.

Chase Cop-O-Top

Chase Cop-O-Top is a most practical type of material for concealed flashing, waterproofing and dampproofing purposes. For public and commercial buildings where a low cost copper flashing is needed, Cop-O-Top is recommended for waterproofing spandrel beams and dampproofing concrete foundations.

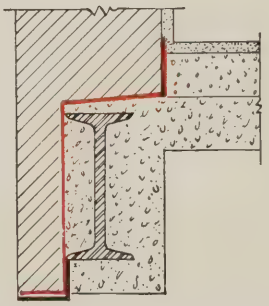
. . . . For residences, Cop-O-Top is recommended for sheathing floors, roofs and attics. Also for flashing around windows and doors, for dampproofing cellars and foundation walls, and for protection against termites and other vermin.



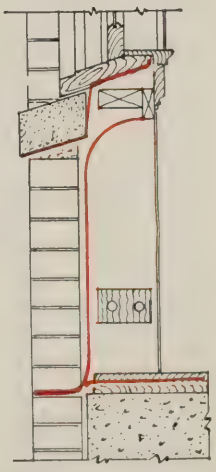
For dampproofing concrete floors.

What Is Cop-O-Top?

Chase Cop-O-Top consists of one layer of sheet copper, one, two or three ounces in thickness and one, two, or three layers of 45 lb. building paper. The building paper has been thoroughly impregnated with a bituminous compound and creped to allow for expansion and contraction. All layers are inseparably bonded with asphalt to form a single flexible sheet. This combination of thin copper bonded to kraft paper produces a product that is extremely tough and flexible and may be handled freely without tearing, kinking or cracking. Chase Cop-O-Top can be folded and formed by hand to fit into nooks and corners, and around odd shapes without breaking. The asphalt content in Chase Cop-O-Top is plastic and therefore adheres tightly around nails, eliminating seepage of moisture or air through nail holes. These features, together with the rustproof advantages of copper, make Cop-O-Top especially practical for all types of waterproofing, dampproofing and insulating purposes. Cop-O-Top is not recommended for flashing exposed surfaces. On parapet walls, cornices, etc., Chase Thru-Wall Flashing, which is made of 16 ounce and 10 ounce copper, should be installed. For valley, cap and base flashings 16 ounce copper should always be used.



Waterproofing spandrel beams. Install with 6" laps trowelled with asphalt.

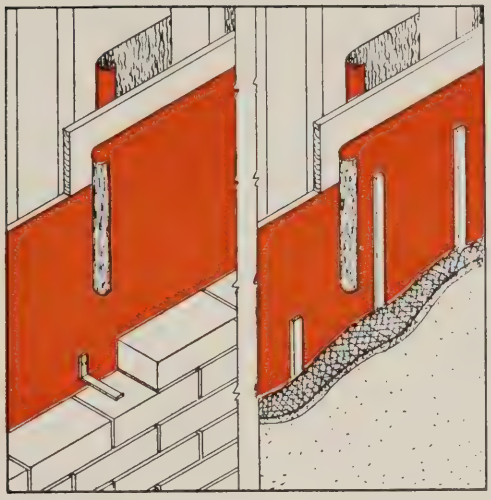


Lining radiator recesses. Install with copper inside.

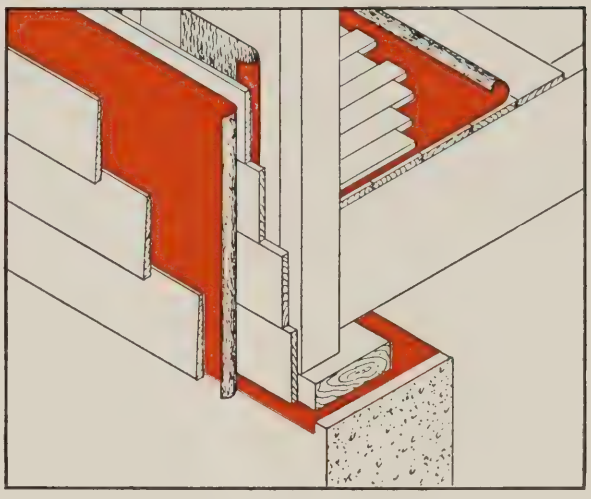
Standard Sizes

Cop-O-Top is furnished in standard rolls 10, 12, 15, 20, 24, 30, 36, 40 and 60 in. wide and 120 feet long. It is regularly supplied in 1 oz.-1 ply, 1 oz.-2 ply, 2 oz.-2 ply, and 3 oz.-3 ply. Other combinations can be made to order.

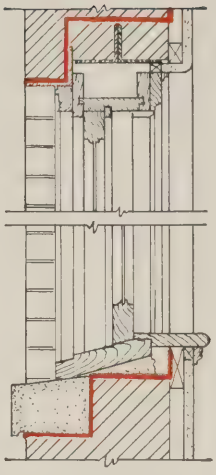
Installation Details



Sheathing and dampproofing stucco and brick veneer buildings.

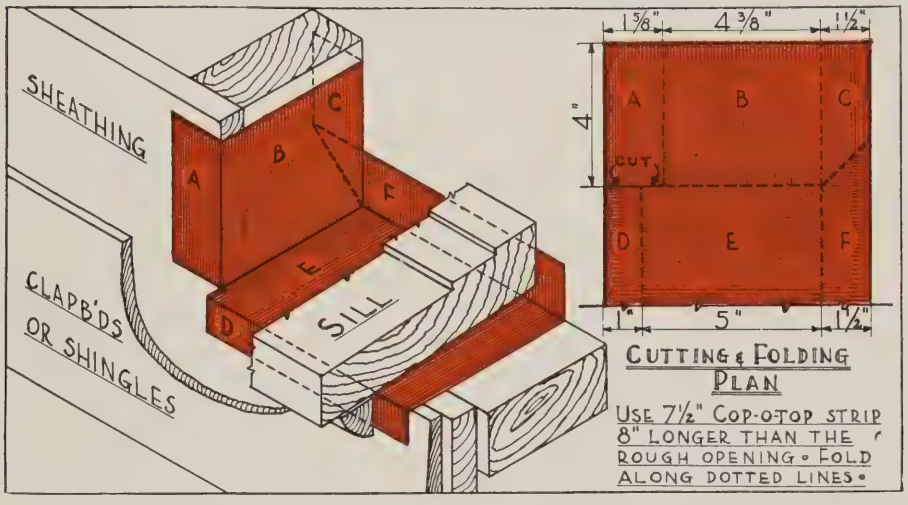


For sheathing residences (attach with copper tacks).

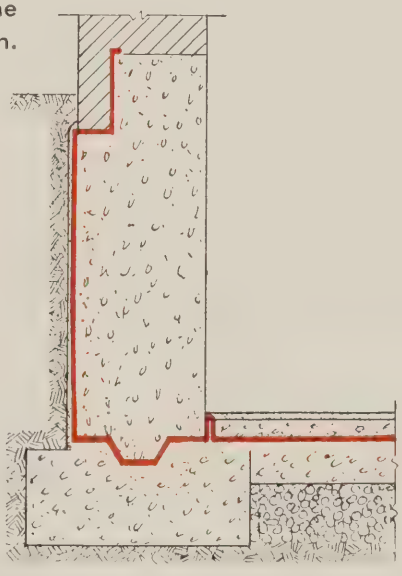


Flashing around window heads and sills.

Cop-O-Top makes a perfect vapor barrier for side walls, when installed on the inner (warm) side of the wall, to prevent rotting of studs due to condensation.



Cop-O-Top drip pan for flashing under window sills. (Note: The 30" roll can be cut into 4 strips—7½" wide.)



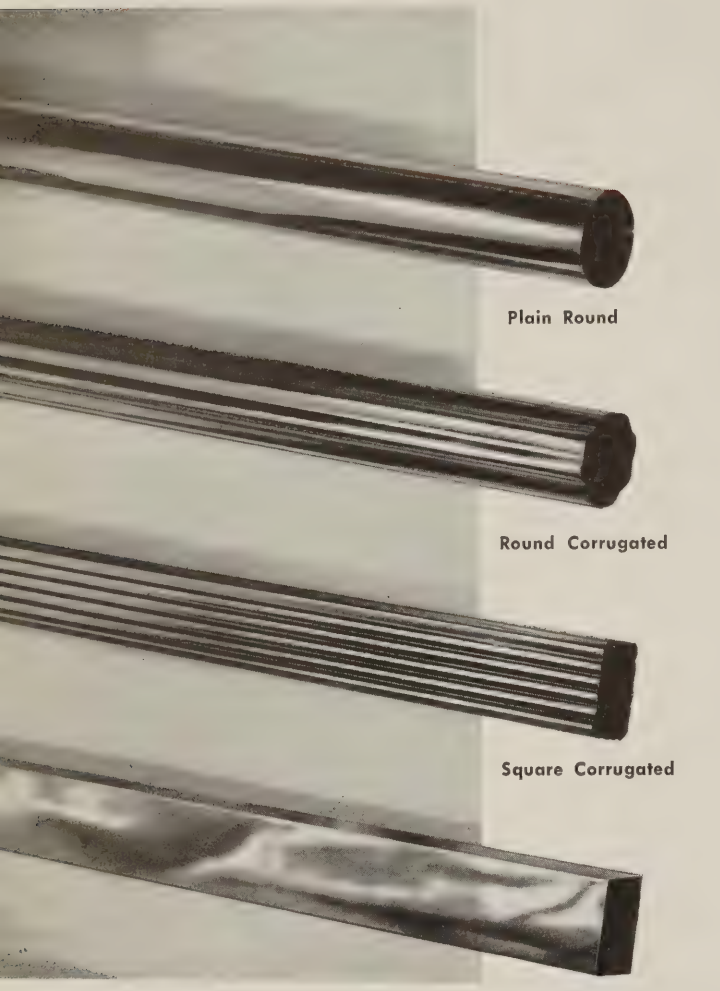
For dampproofing concrete foundations.

Standard widths (inches)	10	12	15	20	24	30	36	40	60
Area per roll (sq. ft.)	100	120	150	200	240	300	360	400	600

Other widths to order.

Specifications

All membrane waterproofing shall be Chase Cop-O-Top (1 oz.-1 ply, 1 oz.-2 ply, 2 oz.-2 ply, 3 oz.-3 ply) consisting of one layer of sheet copper as designated, bonded to (1, 2 or 3 layers) 45 lb. building paper, thoroughly impregnated with a bituminous compound and creped to allow a minimum stretch of 12%. The layer of copper and the several plies of saturated building paper shall be inseparably bonded together with asphalt to form a single flexible sheet that will not easily kink or crack when forming by hand. Install with copper side facing up or toward the outside of the building.



Plain Round

Round Corrugated

Square Corrugated

Plain Square
(Available on special order only)

Chase Copper Downspouts

Stock Sizes

Copper downspouts are made in lengths of 10 feet. The corrugations are deep and even, which is a genuine protection against bursting from ice expansion. The seams are tightly locked with a power press and are uniform throughout the entire length. Each length is die-stamped with the Chase trade-mark and "16 oz.," which is your protection against downspouts made from light weight copper sheets.

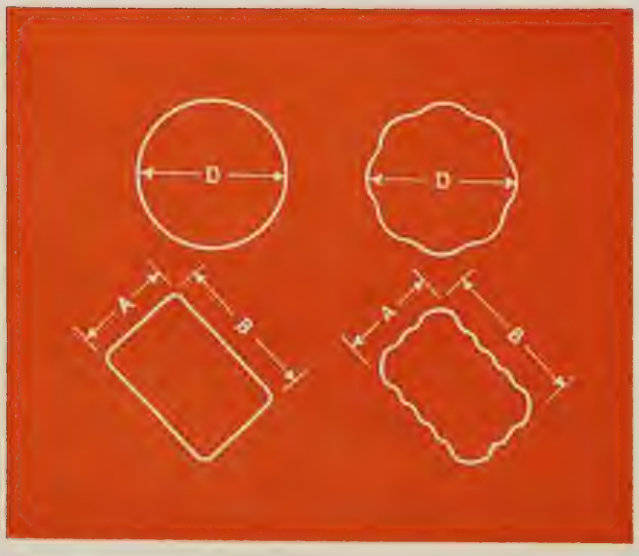
There are three types and five sizes of Chase Copper Downspouts available for immediate shipment from warehouse stocks:

Plain round and corrugated round in 2″, 3″, 4″, 5″ and 6″.

Corrugated square in 2″, 3″, 4″ and 5″.

Special Sizes

In addition to the three types of downspouts carried in stock, we can also furnish plain square downspouts on special order.

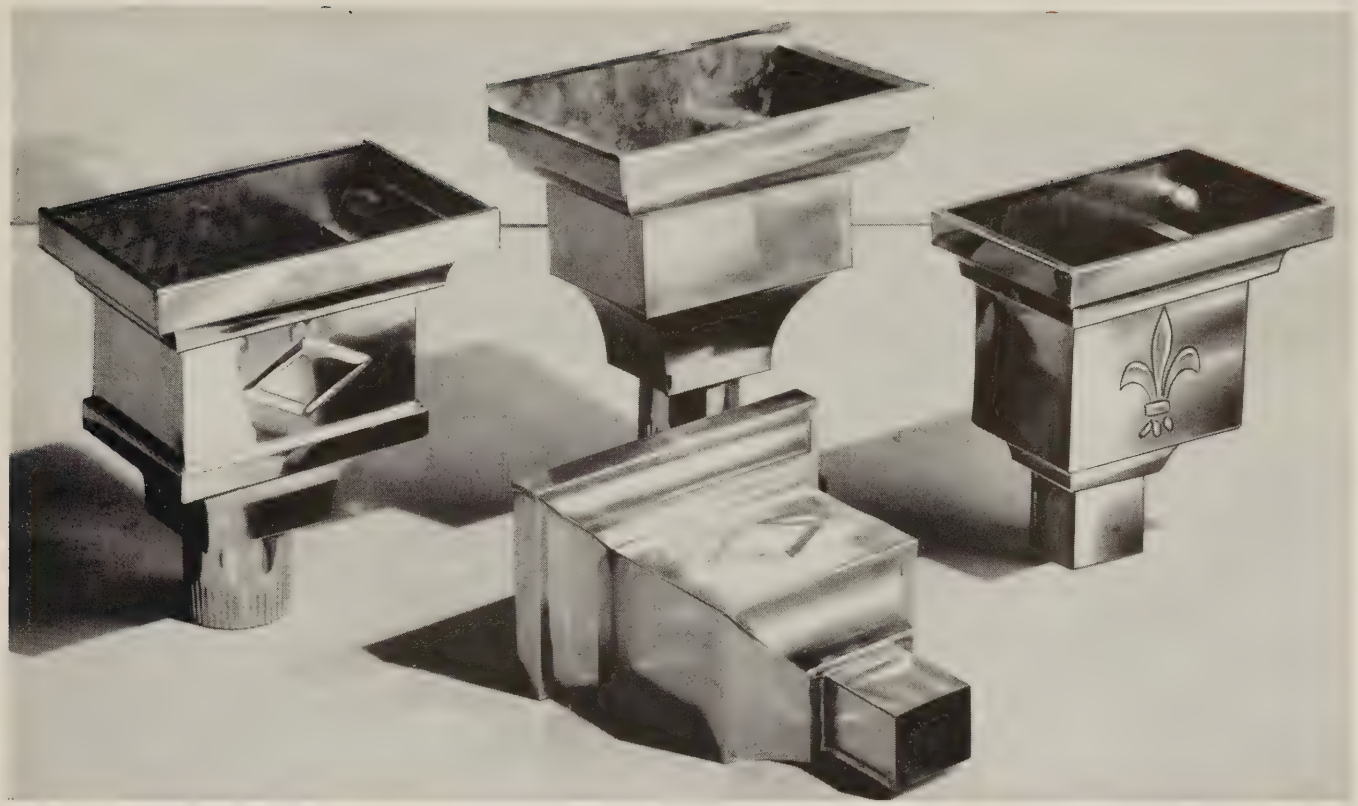


Dimensions

Subject to Commercial Variation

1. Diameters of all round downspouts are exactly as listed.
2. Plain Square is made to the exact dimensions specified.
3. The following are the approximate dimensions of square corrugated downspouts:

List Size	Short Side (A)	Long Side (B)
2″ (1 x 2)	1⅞″	2⅜″
3″ (2 x 3)	2¼″	3″
4″ (3 x 4)	2¾″	4 3/16″
5″ (4 x 5)	3⅝″	5 1/16″

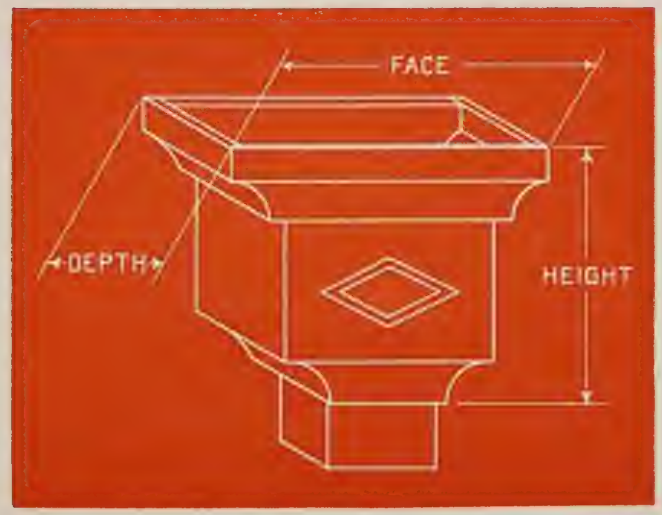


Large Diamond | Standard No. 14 | Small Diamond | Fleur-de-lis

Copper Downspout Heads

The three types of Chase Copper Downspout Heads illustrated above are practical for the average building. Their simple, good-looking designs adapt them to almost any style architecture. Quantity production permits very reasonable prices on these stock patterns, all of which are usually available for immediate shipment from Chase Warehouse stocks.

All Downspout Heads are available with either round or square outlets. Any of these stock patterns can also be supplied lead coated within a few days.



Dimensions

(Subject to Commercial Variation)

Pattern	No.	Outlet		Face	Depth	Height
		Square	Round			
Large Dia.	1A	2″x3″	3″	10″	6″	9″
Large Dia.	1B	3″x4″	4″	11″	6½″	9″
Small Dia.	2A	2″x3″	3″	9″	5½″	7½″
Small Dia.	2B	3″x4″	4″	10″	6″	7½″
Fleur-de-lis	3A	2″x3″	3″	9″	5½″	7½″
Fleur-de-lis	3B	3″x4″	4″	10″	6″	7½″
Standard	14A	2″x3″	3″	10″	5¾″	8½″
Standard	14B	3″x4″	4″	11″	6½″	8½″
Standard	14C	4″x5″	5″	12″	7½″	11″
Standard	14D	....	6″	14″	10″	12″

The above standard types can be supplied to fit other standard sizes of downspouts.

Special Designs

Architects often design their own downspout heads to harmonize with the individual design of a building. These specially designed downspout heads, like the one illustrated to the right, can be made to order from architect's drawings. In making specially designed downspout heads the greatest care is taken to follow blueprints, drawings and specifications accurately.

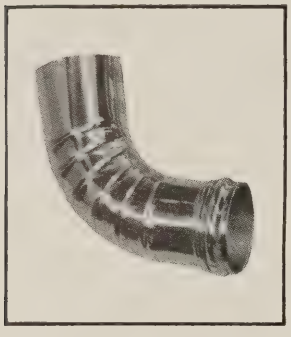
ELBOWS, SHOES AND RIDGE ROLLS

Plain
Round Elbow

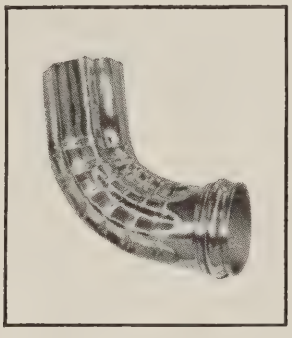
Corrugated
Round Elbow

Square Corrugated
Elbow Style "A"

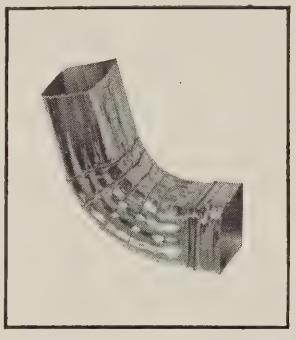
Square Corrugated
Elbow Style "B"



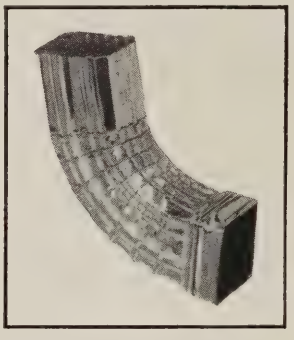
Plain
Round Shoe



Corrugated
Round Shoe



Square Corrugated
Shoe Style "A"



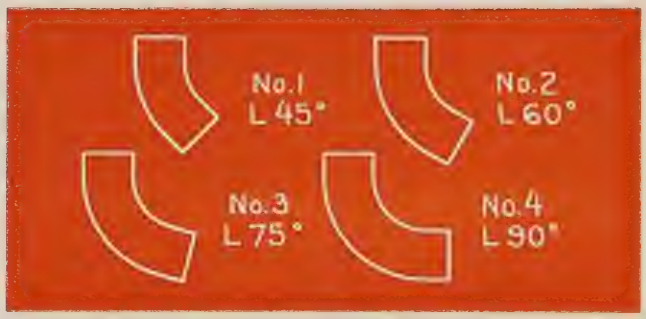
Square Corrugated
Shoe Style "B"

Chase Copper Elbows and Shoes

Copper Elbows and Shoes are available for 2", 3", 4", 5" and 6" downspouts. Elbows are made in four types. No. 1 — 45°, No. 2 — 60°, No. 3 — 75°, No. 4 — 90° angle. Shoes are made in No. 3 — 75° angle only. The ends of all Chase Shoes are strongly reinforced at the open ends so they can't be easily dented.

As illustrated, square corrugated elbows and shoes are furnished in two styles. Style A is bent on the wider dimension, and style B is bent on the narrower dimension.

Degree of Angle



Number of Elbows per Carton

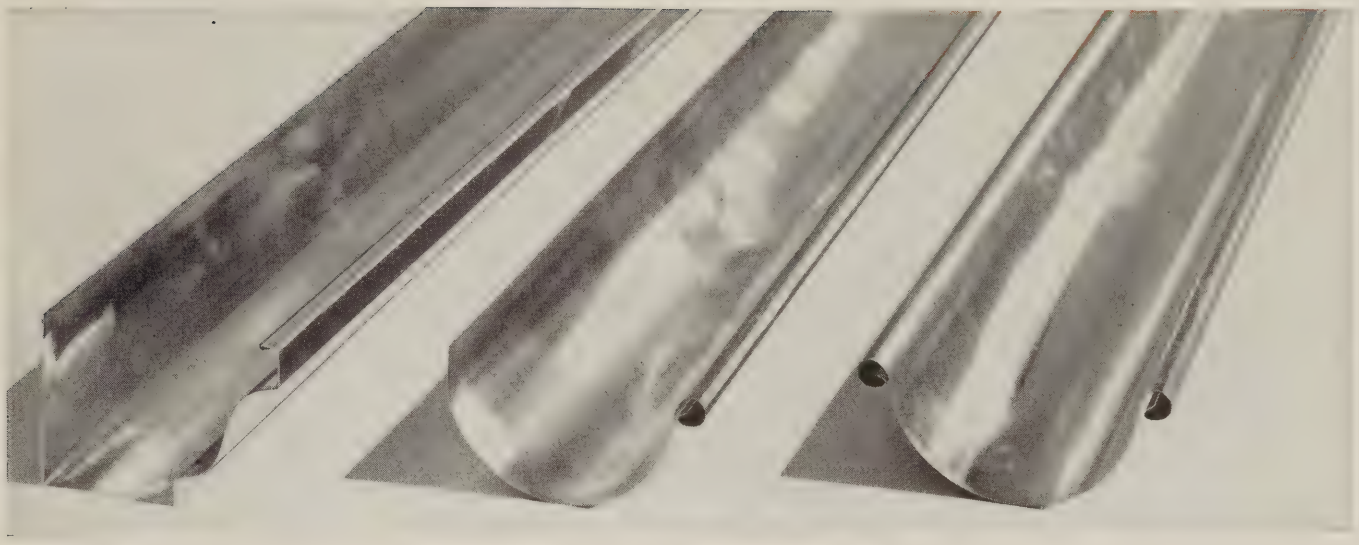
Size	TYPE AND NUMBER																			
	Plain Round					Round Corrugated					Square Corrugated (A)					Square Corrugated (B)				
	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
2"		120	96	96	84		84	72	60	60		84	72	60	60		96	84	72	60
3"	84	72	72	60	60	84	84	72	60	60		108	72	72	60		84	72	60	60
4"	60	48	42	36	36	60	48	42	36	36		48	48	42	36		54	42	36	36
5"		24	24	20	18		24	24	20	18		24	24	24	20		24	24	24	20
6"		18	12	10	10		12	12	12	12										

Shoes packed in same quantities as elbows.

Copper Ridge Roll

Available in 10 ft. Lengths — 16 ounce

Size of Roll	Apron	Girth
1½ in.	2 in.	8 in.
2 in.	2½ in.	10 in.
2½ in.	3 in.	12 in.
3 in.	3½ in.	14 in.



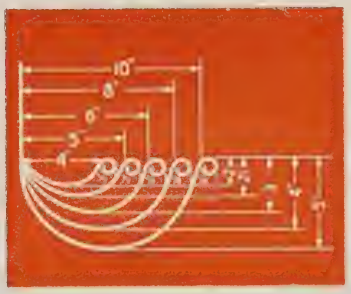
Style K

Single Bead
Lap Joint

Double Bead
Lap Joint

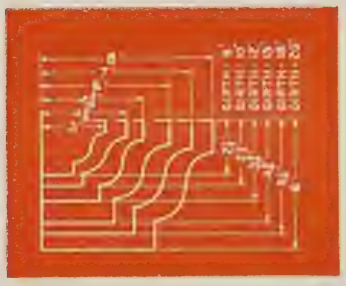
Half Round Copper Gutters

Chase Half Round Copper Gutters are made from standard 16 oz. copper, in sizes 4″ up to and including 10″ and in 10-ft. lengths. There are two types: Single Bead Lap Joint and Double Bead Lap Joint. These gutters are made with a full round bead, uniform in width throughout the entire length and true to size and shape. This means that the mitres and end pieces will fit closely and still be easy to assemble. There is a slight setback on the rear edge of the single bead gutters so they may be installed evenly against the roof or eaves.



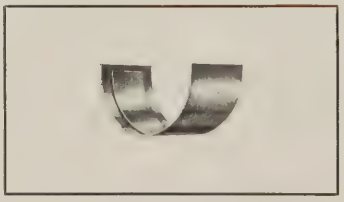
Copper Style K Box Gutters

Style K Box Gutters are made in 10-ft. lengths from 16 oz. copper and are usually carried in stock in 10″ and 12″ girths. Other sizes can be made to order.



Slip Joint Connections

Slip Joint Connections are available in 4″, 5″, 6″ and 7″ sizes and are made from 16 oz. copper. Used with lap joint gutters, they provide right or left hand slip at will.



Half Round Copper Mitres

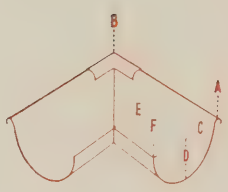
To fit all single and double bead Half Round Gutters.
When ordering specify outside or inside mitre.

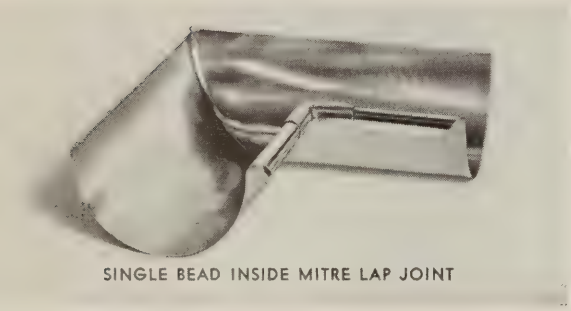
SINGLE BEAD OUTSIDE MITRE LAP JOINT

Dimensions

Standard ½" Single Bead
Outside Mitre — Lap Joint

Gutter Size	AB	FE	FA	EB	CD
4"	8⅝"	4⅛"	4½"	6½"	2¼"
5"	9⅝"	4⅛"	5½"	8"	2⅝"
6"	9⅝"	4⅛"	5½"	8"	2⅝"

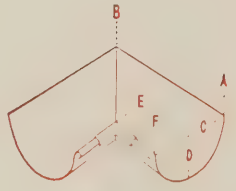




SINGLE BEAD INSIDE MITRE LAP JOINT

Standard ½" Single Bead
Inside Mitre — Lap Joint

Gutter Size	AB	FE	FA	EB	CD
4"	8"	3⅜"	4½"	6⅝"	2¼"
5"	9"	3½"	6"	8"	2⅝"
6"	11⅛"	4⅝"	6½"	9½"	3¼"

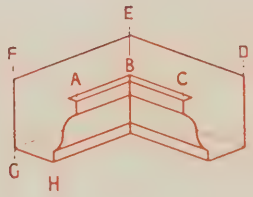


BOX GUTTER OUTSIDE MITRE STYLE "K"

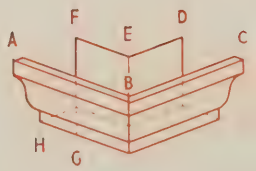
Style K Box Gutter Copper Mitre

Type	Girth	AB	BC	DE	EF	GH	GF	FA
Inside Mitre	10"	3½"	3½"	7¾"	7¾"	2¾"	2¾"	4⅜"
Inside Mitre	12"	3½"	3½"	8¼"	8¼"	3"	3¾"	4¾"
Outside Mitre	10"	7¾"	7¾"	3½"	3½"	2¾"	2¾"	4⅜"
Outside Mitre	12"	8¼"	8¼"	3½"	3½"	3"	3¾"	4¾"

Inside and Outside Bend Copper Mitres are available for Style "K" Box Gutters in 10" and 12" girths.



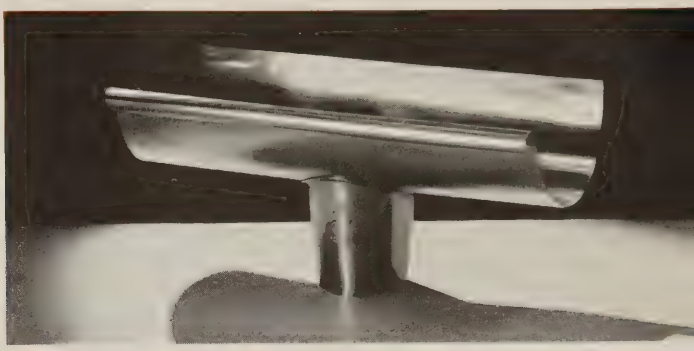
BOX GUTTER INSIDE MITRE STYLE "K"

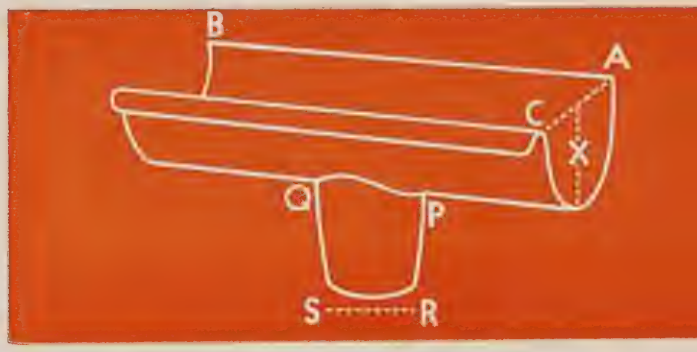


Copper End Pieces
for Half Round Gutters

With outlet only; to fit single and double bead gutters.

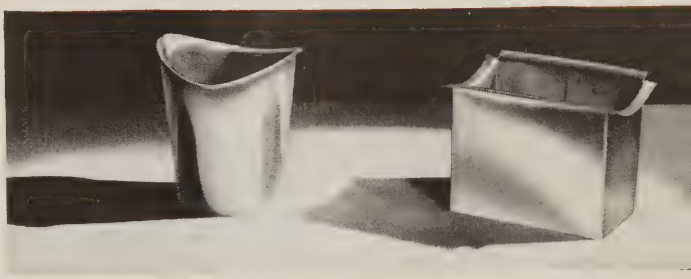
Size	AB	AC	X	PX	PQ	RS	PR
4 x 2	12″	4½″	2¼″	4¾″	2½″	1⅞″	3⅛″
4 x 3	12″	4½″	2¼″	4⅜″	3¼″	2¼″	2⅞″
5 x 3	12″	5½″	2¾″	4⅜″	3¼″	2¼″	2¾″
5 x 4	12″	5½″	2¾″	3⅞″	4⅛″	3⅝″	2¼″
6 x 3	12″	6½″	3¼″	4⅜″	3¼″	2¼″	2¾″
6 x 4	12″	6½″	3¼″	3⅞″	4⅛″	3⅝″	2¼″





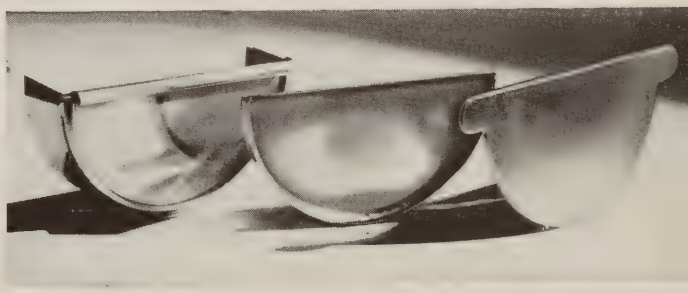
Copper Outlets
for Half Round Gutters

For 2″, 3″, 4″, 5″ and 6″ Round Downspout, and 2″, 3″, 4″ and 5″ Square Downspout. A flange on the top of the outlet simplifies the soldering of the outlet to the gutter.



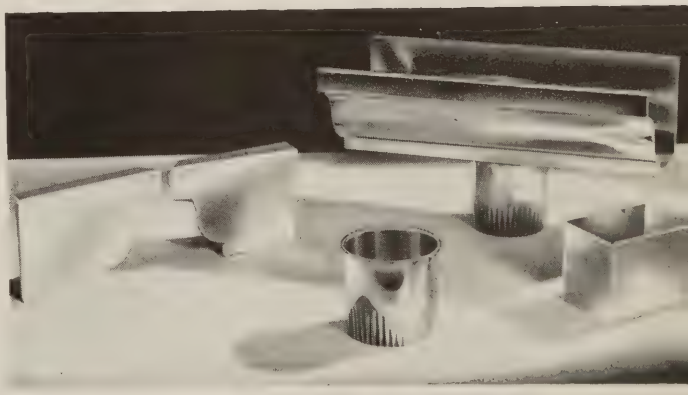
Copper End Caps
for Half Round Gutters

Available in lap joint and slip joint to fit 4″, 5″, or 6″ single or double bead gutter.

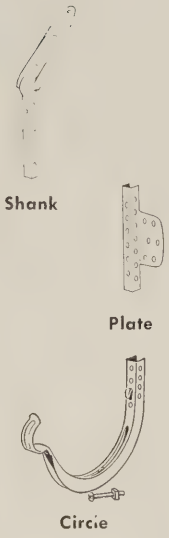


Copper End Pieces, Outlets and End Caps
for Style K Box Gutters

End pieces, outlets and end caps are available as illustrated. When ordering end caps specify whether left or right is wanted.



GUTTER HANGERS

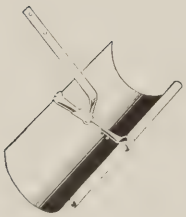


Monarch Gutter Hangers

And Circles with Shanks or Plates

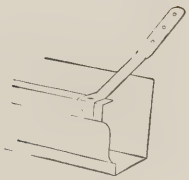
The Monarch Gutter Hanger is a patented shank and circle hanger made exclusively for Chase. The circle, stamped from heavy gauge copper, has a double-channel cross section to guarantee maximum strength and rigidity. The shank, which can be adjusted to fit varying roof pitches, may be attached to the eave, while the plate is for installations where the gutter is to be hung flat against the wall. The outside tip of the Monarch circle is bent (back) over the bead after the gutter is installed to lock the gutter firmly and permanently in place in one simple motion. Copper screws and nuts are furnished with Monarch Hangers; their simplified construction makes it easy to adjust the hangers to provide the exact pitch necessary to drain water from the gutter.

The Monarch Hanger is stocked in 4", 5", and 6" sizes.



Metco Strap Hangers

A one-piece strap hanger available for 4", 5" and 6" single bead gutters. Packed one gross per carton. Also available for double bead gutters.

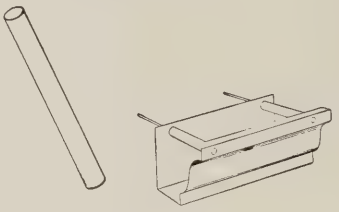


Hangers for Style K Box Gutters

Made in standard sizes for Type K Gutters, 11" long. Packed one gross per carton.

Gutter Spikes for Box Gutters

Oval and Flat Head—Sizes: ¼" diameter 6" and 7" long; 3/16" diameter 7" long; No. 5 gauge 8" long.



Spike Sleeves for Box Gutters

Made to fit popular sizes of box gutter.

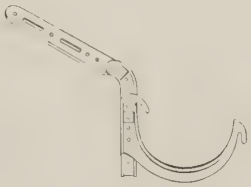
Type B Copper and Bronze Gutter Hangers

(The numbers and descriptions cover the shanks only. For data on circles, see page 24.)

No. 1 Bronze

No. 1 is clamped direct to the metal roof, needing only one bolt through the iron. A practical hanger for awnings and corrugated roofs.

For large gutters use No. 16 stem giving one inch larger drip projection.



No. 2 Bronze

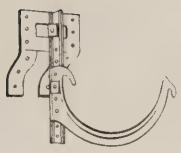
No. 2 is nailed to the side of rafter for any desired angle, either flat or extra steep roofs.

See No. 11 for same pattern in one piece.

No. 5 Bronze

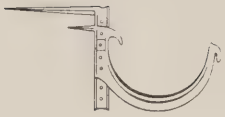
No. 5 will fit over various shaped mouldings and is easily bent larger or smaller before nailing to the eave.

For larger projection of the shingle use No. 1 stems with this plate.



No. 6 Copper and Bronze

No. 6 is made specially to nail against "O.G." mouldings. The two stays are made to fit in the cove and can be bent to suit variation.

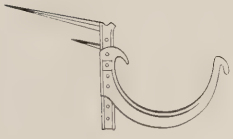


No. 7 Bronze

No. 7 is made to drive from three to four inches square in the cornice. The lower prong forms a brace for the upper and makes it very strong and firm.

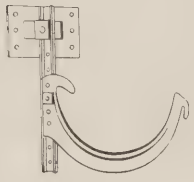
No. 8 Bronze

No. 8 is made to drive from three to six inches square in the cornice. This is intended for eaves where the shingles project far over the cornice.



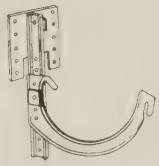
No. 9 Bronze

No. 9 is to drive with the pitch of the roof. Same length as No. 7. Suited for narrow moulded cornice.



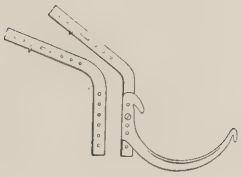
No. 10 Copper and Bronze

No. 10 is made to nail against square box cornices.



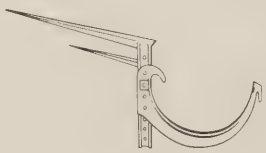
No. 10 — Special — Copper and Bronze

No. 10 — special — this shank is used where the nailing room will not permit the use of the No. 10 regular.



Nos. 11 and 22 Copper and Bronze

Nos. 11 and 22 Shanks are for nailing to the side of exposed rafters. Furnished in 4 and 5 inch drop lengths. When ordering, specify No. 11 for ⅓ pitch or No. 22 for ⅙ pitch.

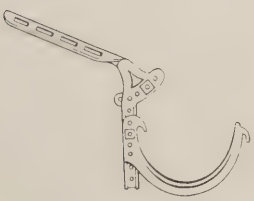


No. 13 Bronze

No. 13 drives with the pitch of the roof. Same length as No. 8.

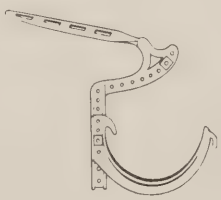
No. 16 Bronze

No. 16 is fastened under the shingle. For extra steep roof use No. 1 stem.



No. 17 Bronze

No. 17 is fastened under the shingles; the hinge and circle both adjust to every ⅛ inch.



No. 19 Bronze

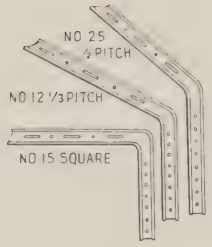
No. 19 is used either on top or under the shingles and suited for short projections of the shingles over the mouldings.

No. 20 Bronze

No. 20 is hinged for any pitch, can be nailed or screwed to various shaped mouldings at any angle desired.

GUTTER HANGERS, CIRCLES, CLIPS AND CROSS BARS

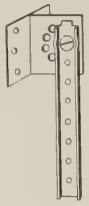
Copper and Bronze Shanks



Copper and Bronze

These are made to fasten under the shingles or slate. They are made of one solid piece of wrought channel and can be bent to any pitch of roof without weakening or breaking. When ordering specify as follows: No. 12, for either ¼ or ⅓ pitch roofs. No. 25 for ½ pitch or steep roofs. No. 15 for flat roofs.

Copper



No. 30 — Designed especially for O. G. Mouldings — takes the place of Nos. 1, 5, 6, 20 and in many instances No. 10.

Copper Extension Shanks

This shank is 6 inches long and can be opened up to extend an additional 5 inches. Interchangeable with any style shank shown.

All type B Shanks and Circles are interchangeable.
Orders for shanks are filled with assorted lengths.

Bronze and Copper Circles

Bronze Circle for Single Bead Gutters

Furnished with brass bolts and clips in sizes 4", 5", 6", 7" and 8".

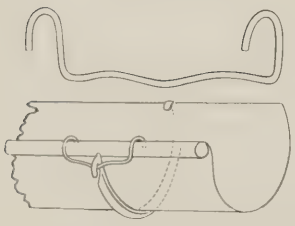
Bronze Circle for Double Bead Gutters

Furnished with brass bolts and clips in sizes 4", 5", 6", 7" and 8".

Copper Channel Circle for Single Bead Gutters

Made of stamped metal in sizes 4", 5" and 6".

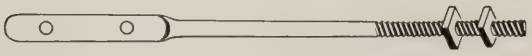
Spring Clips



This clip simplifies the erection of gutters when shanks and circles are used, and makes a perfect finished job. It requires no solder, stays secure under all conditions, and is easy to attach and detach. This bronze spring clip is also used for straightening gutters that have sagged out of shape, because the old style circle straps fell off. When these clips are purchased with Type B circles there is no extra charge.

One size spring clip for all size circles.

Copper Gutter Hanger Rods



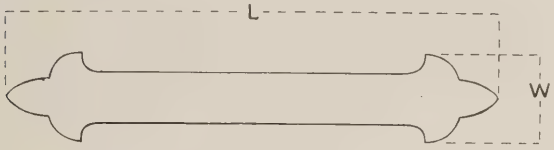
¼ inch diameter — 7, 9, 10 and 11 inches long.

Copper Cross Bars

Made of stamped material — Copper cross bars are used with copper gutter hanger rods.

Copper Downspout Straps

Chase Copper Downspout Straps are made of heavy gauge metal strong enough to hold the downspout in place without the use of hooks. They can be used with standard styles and sizes of downspout.



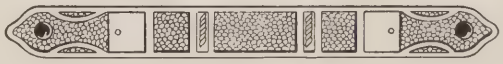
Dimensions of Straps

Style	Size	"L" Overall Length	"W" Extreme Width	Gauge
B	3″	16⅝″	2¾″	16 oz.
B	4″	18½″	2¾″	16 oz.
B	5″	22¾″	2¾″	16 oz.
C	3″	18¼″	3″	16 oz.
C	4″	20¼″	3″	16 oz.
L	2″	13″	2¾″	24 oz.
L	3″	14⅜″	2¾″	24 oz.
L	4″	16⅝″	2¾″	24 oz.
Fitrite Jr.	3″	14⅜″	1½″	20 oz.
Fitrite Jr.	4″	16½″	1½″	20 oz.
Metco Jr.	3″	14″	1¾″	20 oz.
Metco Jr.	4″	16″	1¾″	20 oz.

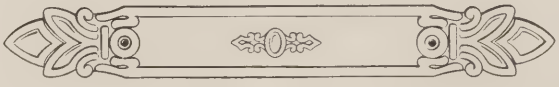
Style B

Style C

Style L



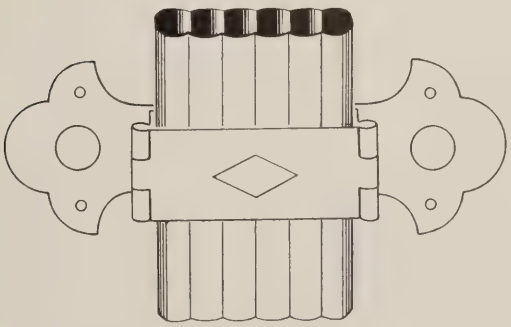
Fitrite Jr.

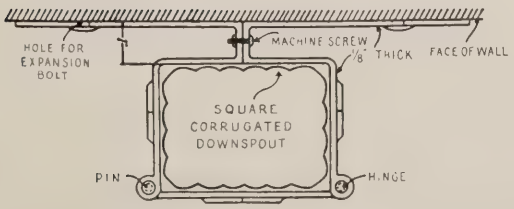


Metco Jr.

End Piece Only for Downspout Strap
16 ounce Copper—Length 4⅜″, Width 4 7/16″

Hinged Bronze Downspout Strap





The right side of the strap is permanently hinged. The left side has a loose pin which permits removing the downspout for replacement without taking the strap from the wall. This strap is so constructed that a machine screw can be adjusted to take care of any variation in downspout sizes and to hold the downspout firmly in position.

Hinged Bronze Downspout Straps are available in the following sizes: 3″ and 4″ round, and 3″, 4″ and 5″ square. In addition to the diamond design illustrated, this strap is also available with a cross on the front plate for church installations.

Hinged Bronze Downspout Straps are made in solid cast bronze. This heavy construction makes its use especially desirable where permanence is essential.

Hinged Bronze Downspout Straps are fastened to the wall with four expansion bolts. (The holes in the straps are properly spaced for brick joints.) When installed, the downspout remains 1 inch from the face of the building.

DOWNSPOUT HOOKS

Bronze Sickle Hooks

For Corrugated Downspouts

Sizes — 2″, 3″ and 4″

Brick Hook

Wood Hook

For Plain Downspouts

Sizes — 2″, 3″, 4″, 5″ and 6″

Brick Hook

Wood Hook

Bronze Hinged Hooks

For Round Corrugated Downspouts

Sizes — Wood Drive

Short—2″, 3″ and 4″

Long—2″, 3″, 4″, 5″ and 6″

Brick Drive—2″, 3″, 4″, 5″ and 6″

Wood Hook

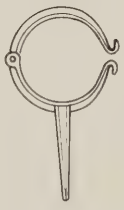
Brick Hook

For Round Plain Downspouts

Sizes — Wood Drive—2″, 3″ and 4″

5″ and 6″—use clasp pipe hook

Brick Drive—2″, 3″, 4″, 5″ and 6″



Wood Hook

Brick Hook

Bronze Wired Hooks

For Round Downspouts

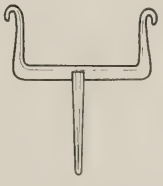
Sizes — 3″ and 4″ (Wood Drive only)

Wood Hook

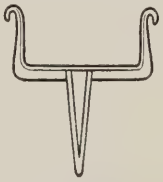
For Square Downspouts

Sizes — Wood Drive—2″, 3″, 4″ and 5″

Brick Drive—2″, 3″, 4″, 5″ and 6″



Wood Hook



Brick Hook

Bronze Clasp Hooks and Drives

For Plain Round Downspouts

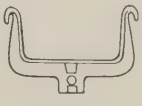
Sizes—3″, 4″, 5″ and 6″

For Round Corrugated Downspouts

Sizes—3″, 4″, 5″ and 6″

For Square Downspouts

Sizes—3″, 4″, 5″ and 6″



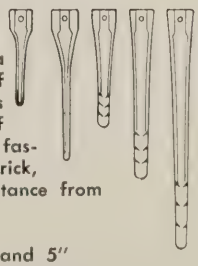
Bronze Drives

The advantage of a small assortment of Clasps and Drives is that a variety of downspouts can be fastened to wood, brick, or stone at any distance from the wall.

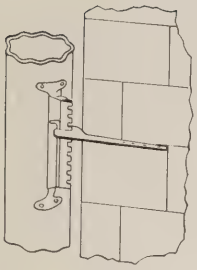
Sizes

Wood Drive — 3″ and 5″

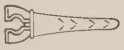
Brick Drive — 4″, 6″ and 9″



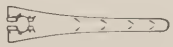
Bronze Downspout Fasteners



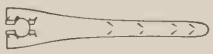
This fastener can be used in any position on all kinds and sizes of downspout. It allows enough variation to slip the downspouts together until they make a tight joint. It needs no close measuring along the wall to find the joint for the drive. The notched rack which is attached to the downspout is long enough to prevent unnecessary strain at the points where the fastener is soldered to the downspout. As shown, a key is placed between the rack and the drive to hold the fastener in the proper position permanently.



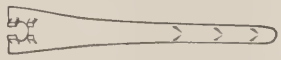
No. 0
Brick Drive — 3″



No. 1
Brick or Stone Drives 4½″



No. 2
Stone Drive — 6″



No. 3
Stone Drive — 9″

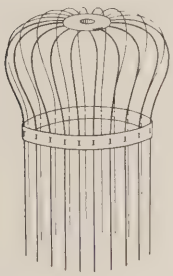
No. 4
Wood Drive — 3″

No. 5
Wood Drive — 5″

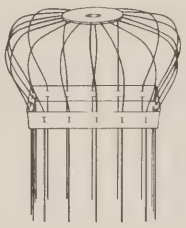
No. 6
To nail on wood

No. 7
To screw on wood

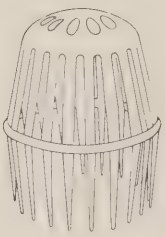
Downspout Strainers



Round Copper Wire Strainers
Sizes — 2″ and 3″ — No. 17 Stubs Gauge
4″ — No. 16 Stubs Gauge
5″ and 6″ — No. 15 Stubs Gauge



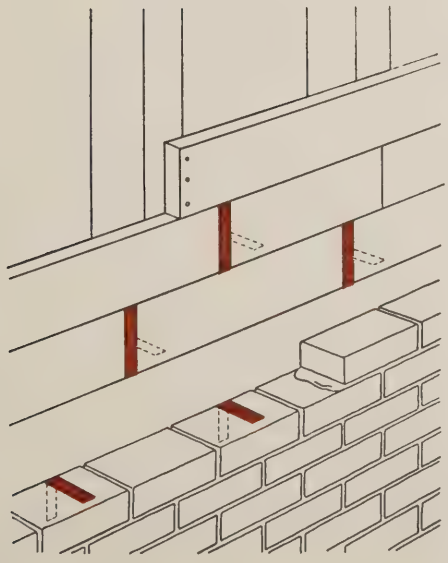
Square Copper Wire Strainers
Sizes — 2″ x 3″ No. 17 Stubs Gauge
3″ x 4″ No. 16 Stubs Gauge
4″ x 5″ No. 15 Stubs Gauge

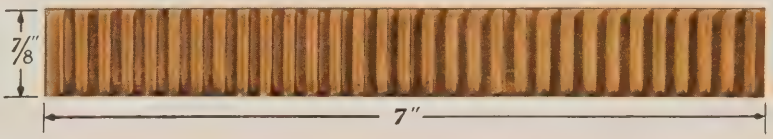


Cast Bronze Strainers
Sizes — Round — 3″, 4″, 5″ and 6″
Square — 2″ x 3″ and 3″ x 4″

Send for information on sizes not shown.

Copper Wall Ties





Chase Copper Wall Ties are used on old and new buildings with brick veneer work over wood sheathing, clapboards or concrete. They come in 16 oz. copper and in one standard size which measures ⅞″ in width by 7″ long. Copper Wall Ties are packed in cartons of 500 pieces. Weight per 1000 pieces — 42 lbs. . . . Net prices on application.

Installation Details

Wall ties should be installed on every second course of brick and 2 or 3 ft. apart. One end of the copper wall tie is fastened to the wall being covered, and the other end is then bent over on to the mortar bed.

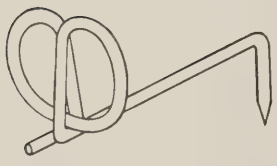
Wire and Pipe Snow Guards

Snow guards lessen chances of damage suits against owners of property by increasing both personal and property safety.

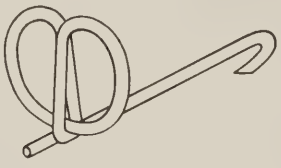
There are many buildings so situated that the use of snow guards is essential to personal safety; there are more cases where the use of snow guards could protect the surrounding roofing and sheet metal work against costly damages.

Sliding snow and ice often injure roofings, and puncture or tear away gutters, etc. The use of snow guards forestalls these dangers, as they hold the ice and snow where they form. They are an inexpensive and inconspicuous preventive against damage.

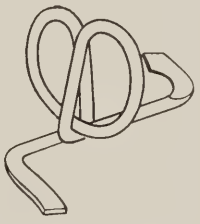
Copper Wire Snow Guards



For New Roofs
1″ and 2″ Points for new Slate Roofs. Also 2″ point with 2″ loop for Tile and Thick Slate Roofs.



For Old Roofs
Hook Point for Slate Roofs already laid.



For Old Roofs
Friction Point for Slate Roofs already laid.

No. 9 B. W. G. wire is standard for all copper wire snow guards. When heavier snow guards are wanted we can furnish in No. 6 B.&S. gauge wire.

The following table gives the approximate number of wire snow guards that may be safely specified for use in each 100 sq. ft. of roof surface.

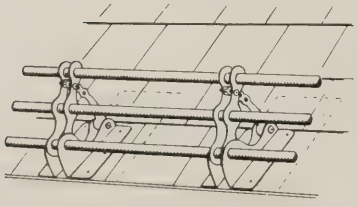
Towers and steeper roofs than indicated in table on the right may require special consideration.

Roof Pitch	Number of Guards
one-quarter	50
one-third	75
one-half	125

Pipe Snow Guards

(Adjustable)

Adjustable Pipe Snow Guard Type A

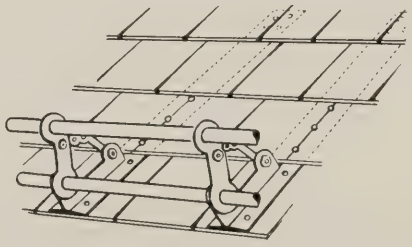


Type "A"
for Slate Roofs

Type A
For Spanish Tile Roofs

The type "A" Snow Guard is made with various types of base plates to fit roofs of slate, Spanish tile, or special shingles. Standard base plate is ⅛″ thick. The guard is adjustable to any pitch, and can be furnished to hold either 2 or 3 brass pipes, either ½″ or ¾″ IPS.

Adjustable Pipe Snow Guard Type B



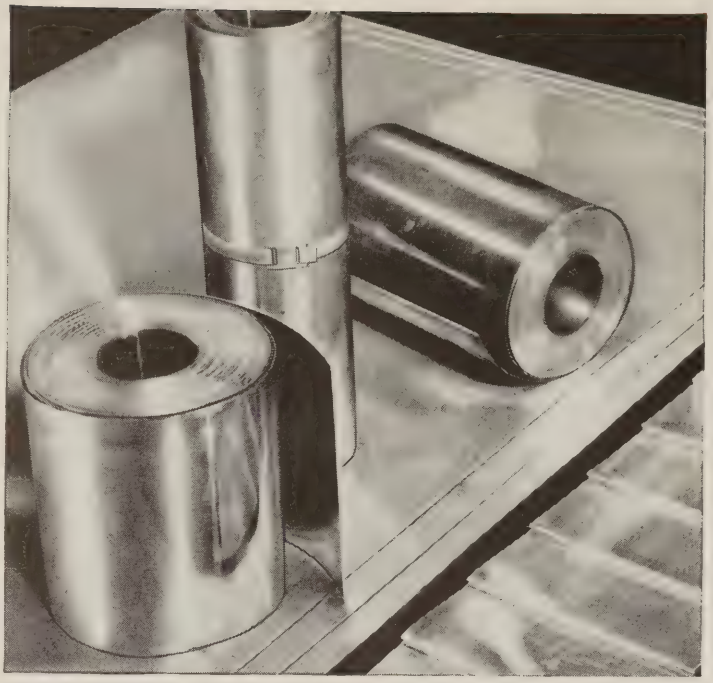
The type "B" Snow Guard can be supplied for old or new roofs. For old roofs, plate is $\frac{1}{16}$″ thick by 2″ wide, by 12″ long. For new roofs, plate is 24″ long. The guard adjusts to any pitch, and holds either ½″ or ¾″ IPS brass pipe.

Sheet and Roll Copper

Practically every sheet metal requirement of the roofer or sheet metal worker can be supplied quickly from one of our Chase warehouses. All Chase Sheet and Roll Copper is carefully packed or crated and is ready for immediate use on arrival. Chase Copper sheets are 99.9% pure copper.

Cold Rolled Copper is generally recommended for all sheet metal work in building construction. Soft Copper should be used for standing and batten seam roofing, and for caps, and certain concealed flashing. Cold Rolled Copper properly installed offers far more resistance than Soft Copper to the stresses induced by expansion and contraction.

All Chase Sheet Copper is trimmed and contains straight and parallel sides and the Cold Rolled Copper in Sheets is levelled by a Patented Levelling process so that it lies flat.

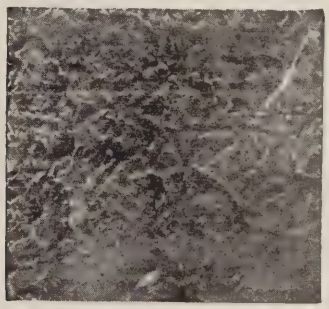


Lead Coated Copper

All Chase sheet, roll and strip copper also can be furnished lead coated. A wide range of finishes from rough heavy coatings to light smooth coatings are usually available, either from the mill stock, or on special order.

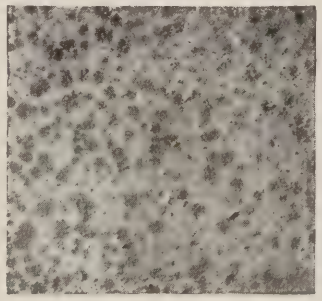
Lead coated copper has the neutral gray coloring of solid lead and the added advantage of lightness, easy working qualities and lower basic cost.

Description of Finishes



Chase Commercial Standard
Coated with approximately 12 to 15 lbs. of lead per 100 square feet applied on Both Sides of the sheet. (6 to 7½ lbs. per side.)

Chase Puritan
Coated with approximately 25 to 30 lbs. of lead per 100 square feet applied on Both Sides of the sheet. (12½ to 15 lbs. per side.)



Chase Colonial
Coated with approximately 40 to 50 lbs. of lead per 100 square feet applied on Both Sides of the sheet. (20 to 25 lbs. per side.)

Stock Sizes — Commercial Standard Finish
Lead Coated Two Sides — Soft or Cold Rolled

Size of Sheet in Inches	Weight per Square Foot	Approximate Total Weight of Sheet	Size of Sheet in Inches	Weight per Square Foot	Approximate Total Weight of Sheet
24″ x 96″	16 oz.	18.00 lbs.	30″ x 120″	16 oz.	28.00 lbs.
24″ x 120″	16 oz.	22.50 lbs.	36″ x 96″	16 oz.	27.00 lbs.
30″ x 96″	16 oz.	22.50 lbs.	36″ x 120″	16 oz.	33.75 lbs.

10 oz. Copper Sheets

For Residential Roofs — Standard size 16" wide x 72" long

Stock Size

Wt. per Sq. Ft.	Size of Sheet	Total Wt. of Sheet
10 oz.	16" x 72"	5 lbs.

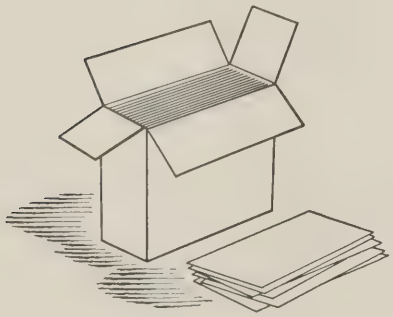
Standard Cases: Contain three squares. Net weight about 240 lbs. (plus or minus 3%).

Each square contains 16 strips or 128 square feet, and weighs about 80 lbs. (plus or minus 3%).

Method of Applying 10 oz. Copper

Pointers on applying 10 oz. standing seam copper roofing: 10 oz. copper sheets are 16" x 72" for laying standing seam roofs with a 13¾" space between seams and with the seams ¾" high.

1. Pitch — 10 oz. Copper Roofing should not be applied on slopes of less than 6 in. to the foot.
2. Sheathing — Boards should be laid solid without open joints parallel to ridge. Sheathing boards are covered with 15 pound asphalt saturated felt.
3. Reroofing — Suitable for old roofs as well as new, however, it should not be applied directly over old roofing materials.
4. Valleys — 16 oz. copper is recommended for all valleys because they are subjected to greater wear than the roof proper.
5. Fastening — No nails penetrate the sheets. They are kept in place by a simple cleat which clamps to the ridge of one sheet and then is nailed to the roof deck before the next sheet is laid.



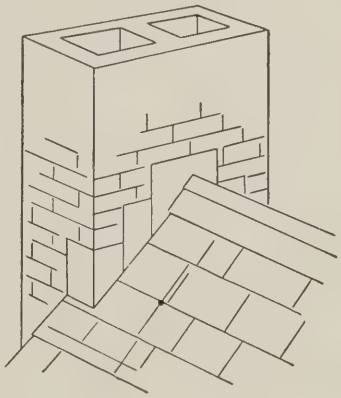
Flat Copper Step Flashing

16 oz. Copper — Size 5" x 7"

Packed 100 pieces to a carton

Weight per 100 pieces — 24 lbs.

Also made in 7" x 10" — 16 oz. copper



CHASE

Weights of Sheet Copper — Soft Temper (Pounds per Sheet)

Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet	Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet	Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet
14 oz.	22″ x 96″	12.80	20 oz.	28″ x 96″	23.30	30 oz.	28″ x 96″	35.00
14 oz.	24″ x 48″	7.00	20 oz.	30″ x 60″	15.63	30 oz.	30″ x 60″	23.40
14 oz.	24″ x 96″	14.00	20 oz.	30″ x 96″	25.00	30 oz.	30″ x 96″	37.50
14 oz.	26″ x 96″	15.20	20 oz.	30″ x 120″	31.20	30 oz.	30″ x 120″	46.90
14 oz.	28″ x 96″	16.33	20 oz.	32″ x 96″	26.70	30 oz.	32″ x 96″	40.00
14 oz.	30″ x 60″	10.94	20 oz.	34″ x 96″	28.30	30 oz.	34″ x 96″	42.50
14 oz.	30″ x 96″	17.50	20 oz.	36″ x 72″	22.50	30 oz.	36″ x 72″	33.80
14 oz.	30″ x 120″	21.90	20 oz.	36″ x 96″	30.00	30 oz.	36″ x 96″	45.00
14 oz.	32″ x 96″	18.70	20 oz.	36″ x 120″	37.50	30 oz.	36″ x 120″	56.20
14 oz.	34″ x 96″	19.80	20 oz.	48″ x 72″	30.00	30 oz.	48″ x 72″	45.00
14 oz.	36″ x 72″	15.80	20 oz.	48″ x 96″	40.00	30 oz.	48″ x 96″	60.00
14 oz.	36″ x 96″	21.00	20 oz.	48″ x 120″	50.00	30 oz.	48″ x 120″	75.00
14 oz.	36″ x 120″	26.20	24 oz.	22″ x 96″	22.00	30 oz.	60″ x 96″	75.00
14 oz.	48″ x 72″	21.00	24 oz.	24″ x 48″	12.00	30 oz.	60″ x 120″	93.80
14 oz.	48″ x 96″	27.13	24 oz.	24″ x 72″	18.00	32 oz.	22″ x 96″	29.30
16 oz.	22″ x 96″	14.70	24 oz.	24″ x 96″	24.00	32 oz.	24″ x 48″	16.00
16 oz.	24″ x 48″	8.00	24 oz.	26″ x 96″	26.00	32 oz.	24″ x 96″	32.00
16 oz.	24″ x 96″	16.00	24 oz.	28″ x 96″	28.00	32 oz.	26″ x 96″	34.70
16 oz.	24″ x 120″	20.00	24 oz.	30″ x 60″	18.75	32 oz.	28″ x 96″	37.30
16 oz.	26″ x 96″	17.33	24 oz.	30″ x 96″	30.00	32 oz.	30″ x 60″	25.00
16 oz.	28″ x 96″	18.67	24 oz.	30″ x 120″	37.50	32 oz.	30″ x 96″	40.00
16 oz.	30″ x 60″	12.50	24 oz.	32″ x 96″	32.00	32 oz.	30″ x 120″	50.00
16 oz.	30″ x 96″	20.00	24 oz.	34″ x 96″	34.00	32 oz.	32″ x 96″	42.70
16 oz.	30″ x 120″	25.00	24 oz.	36″ x 72″	27.00	32 oz.	34″ x 96″	45.30
16 oz.	32″ x 96″	21.33	24 oz.	36″ x 96″	36.00	32 oz.	36″ x 72″	36.00
16 oz.	34″ x 96″	22.70	24 oz.	36″ x 120″	45.00	32 oz.	36″ x 96″	48.00
16 oz.	36″ x 72″	18.00	24 oz.	48″ x 72″	36.00	32 oz.	36″ x 120″	60.00
16 oz.	36″ x 96″	24.00	24 oz.	48″ x 96″	48.00	32 oz.	48″ x 72″	48.00
16 oz.	36″ x 120″	30.00	24 oz.	48″ x 120″	60.00	32 oz.	48″ x 96″	64.00
16 oz.	48″ x 72″	24.00	24 oz.	60″ x 96″	60.00	32 oz.	30″ x 72¼″	30.10
16 oz.	48″ x 96″	32.00	24 oz.	60″ x 120″	75.00	32 oz.	48″ x 120″	80.00
16 oz.	48″ x 120″	40.00	28 oz.	22″ x 96″	25.70	32 oz.	60″ x 96″	80.00
18 oz.	22″ x 96″	16.50	28 oz.	24″ x 48″	14.00	32 oz.	60″ x 120″	100.00
18 oz.	24″ x 48″	9.00	28 oz.	24″ x 96″	28.00	36 oz.	22″ x 96″	33.00
18 oz.	24″ x 96″	18.00	28 oz.	26″ x 96″	30.30	36 oz.	24″ x 48″	18.00
18 oz.	26″ x 96″	19.50	28 oz.	28″ x 96″	32.70	36 oz.	24″ x 96″	36.00
18 oz.	28″ x 96″	21.00	28 oz.	30″ x 96″	35.00	36 oz.	26″ x 96″	39.00
18 oz.	30″ x 60″	14.06	28 oz.	30″ x 120″	43.80	36 oz.	28″ x 96″	42.00
18 oz.	30″ x 96″	22.50	28 oz.	32″ x 96″	37.30	36 oz.	30″ x 60″	28.10
18 oz.	30″ x 120″	28.10	28 oz.	34″ x 96″	39.70	36 oz.	30″ x 96″	45.00
18 oz.	32″ x 96″	24.00	28 oz.	36″ x 72″	31.50	36 oz.	30″ x 120″	56.20
18 oz.	34″ x 96″	25.50	28 oz.	36″ x 96″	42.00	36 oz.	32″ x 96″	48.00
18 oz.	36″ x 72″	20.20	28 oz.	36″ x 120″	52.50	36 oz.	34″ x 96″	51.00
18 oz.	36″ x 96″	27.00	28 oz.	48″ x 72″	42.00	36 oz.	36″ x 72″	40.50
18 oz.	36″ x 120″	33.80	28 oz.	48″ x 96″	56.00	36 oz.	36″ x 96″	54.00
18 oz.	48″ x 72″	27.00	28 oz.	48″ x 120″	70.00	36 oz.	36″ x 120″	67.50
18 oz.	48″ x 96″	36.00	28 oz.	60″ x 96″	70.00	36 oz.	48″ x 72″	54.00
18 oz.	48″ x 120″	45.00	28 oz.	60″ x 120″	87.50	36 oz.	48″ x 96″	72.00
20 oz.	22″ x 96″	18.30	30 oz.	22″ x 96″	27.50	36 oz.	48″ x 120″	90.00
20 oz.	24″ x 96″	20.00	30 oz.	24″ x 48″	15.00	36 oz.	60″ x 96″	90.00
20 oz.	24″ x 48″	10.00	30 oz.	24″ x 96″	30.00	36 oz.	60″ x 120″	112.00
20 oz.	26″ x 96″	21.70	30 oz.	26″ x 96″	32.50			

Strip Copper — Soft Temper

For General Sheet Metal Work

Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet
14 oz.	20 x 96	11.66
16 oz.	20 x 96	13.33
16 oz.	20 x 120	16.66
18 oz.	20 x 96	15.00
20 oz.	20 x 96	16.66
24 oz.	20 x 96	20.00
32 oz.	20 x 96	26.66

Roll Copper — Soft Temper

In rolls of 80 to 100 Pounds

Weight per Sq. Ft.	Width	Approx. Wt. per Linear Ft.	Approx. Tot. Lgth. of Roll	Weight per Sq. Ft.	Width	Approx. Wt. per Linear Ft.	Approx. Tot. Lgth. of Roll
16 oz.	5″	.417 lbs.	180 ft.	14 oz.	14″	1.021 lbs.	73 ft.
16 oz.	6″	.500 lbs.	198 ft.	16 oz.	14″	1.167 lbs.	64 ft.
16 oz.	7″	.583 lbs.	128 ft.	18 oz.	14″	1.310 lbs.	72 ft.
16 oz.	8″	.667 lbs.	112 ft.	16 oz.	15″	1.250 lbs.	50 ft.
16 oz.	10″	.833 lbs.	90 ft.	16 oz.	16″	1.333 lbs.	56 ft.
14 oz.	12″	.875 lbs.	86 ft.	16 oz.	18″	1.500 lbs.	50 ft.
16 oz.	12″	1.000 lbs.	75 ft.	16 oz.	20″	1.667 lbs.	45 ft.
18 oz.	12″	1.135 lbs.	67 ft.				

Sheet Copper — Cold Rolled Temper (Pounds per Sheet)

Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet	Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet	Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet
14 oz.	22″ x 96″	12.80	20 oz.	22″ x 96″	18.30	28 oz.	34″ x 96″	39.70
14 oz.	24″ x 48″	7.00	20 oz.	24″ x 48″	10.00	28 oz.	36″ x 72″	31.50
14 oz.	24″ x 96″	14.00	20 oz.	24″ x 96″	20.00	28 oz.	36″ x 96″	42.00
14 oz.	26″ x 96″	15.17	20 oz.	26″ x 96″	21.70	28 oz.	36″ x 120″	52.50
14 oz.	28″ x 96″	16.33	20 oz.	28″ x 96″	23.30	28 oz.	48″ x 72″	42.00
14 oz.	30″ x 60″	10.94	20 oz.	30″ x 60″	15.63	28 oz.	48″ x 96″	56.00
14 oz.	30″ x 96″	17.50	20 oz.	30″ x 96″	25.00	28 oz.	48″ x 120″	70.00
14 oz.	30″ x 120″	25.00	20 oz.	30″ x 120″	31.25	28 oz.	60″ x 96″	70.00
14 oz.	32″ x 96″	18.70	20 oz.	32″ x 96″	26.70	28 oz.	60″ x 120″	87.50
14 oz.	34″ x 96″	19.80	20 oz.	34″ x 64″	18.88	30 oz.	22″ x 85″	24.33
14 oz.	36″ x 72″	15.80	20 oz.	34″ x 96″	28.30	30 oz.	22″ x 96″	27.50
14 oz.	36″ x 96″	21.00	20 oz.	36″ x 72″	22.50	30 oz.	24″ x 48″	15.00
14 oz.	36″ x 120″	26.20	20 oz.	36″ x 96″	30.00	30 oz.	24″ x 96″	30.00
14 oz.	44″ x 93″	24.85	20 oz.	36″ x 120″	37.50	30 oz.	25¼″ x 82″	26.92
14 oz.	48″ x 72″	21.00	20 oz.	42″ x 96″	35.00	30 oz.	26″ x 96″	32.50
14 oz.	48″ x 96″	28.00	20 oz.	48″ x 72″	30.00	30 oz.	28″ x 96″	35.00
16 oz.	22″ x 96″	14.70	20 oz.	48″ x 96″	40.00	30 oz.	30″ x 60″	23.40
16 oz.	24″ x 48″	8.00	20 oz.	48″ x 120″	50.00	30 oz.	30″ x 96″	37.50
16 oz.	24″ x 96″	16.00	22 oz.	36″ x 96″	33.00	30 oz.	30″ x 120″	46.90
16 oz.	24″ x 120″	17.33	24 oz.	22″ x 96″	22.00	30 oz.	30¼″ x 84″	33.07
16 oz.	26″ x 96″	18.37	24 oz.	24″ x 48″	12.00	30 oz.	32″ x 96″	40.00
16 oz.	28″ x 96″	20.00	24 oz.	24″ x 96″	24.00	30 oz.	34″ x 96″	42.50
16 oz.	30″ x 60″	12.50	24 oz.	24″ x 120″	30.00	30 oz.	36″ x 72″	33.80
16 oz.	30″ x 96″	20.00	24 oz.	26″ x 96″	26.00	30 oz.	36″ x 96″	45.00
16 oz.	30″ x 120″	25.00	24 oz.	28″ x 96″	28.00	30 oz.	36″ x 120″	56.20
16 oz.	32″ x 96″	21.33	24 oz.	30″ x 60″	18.75	30 oz.	48″ x 72″	45.00
16 oz.	34″ x 96″	22.62	24 oz.	30″ x 96″	30.00	30 oz.	48″ x 96″	60.00
16 oz.	36″ x 72″	18.00	24 oz.	30″ x 120″	37.50	30 oz.	48″ x 120″	75.00
16 oz.	36″ x 96″	24.00	24 oz.	32″ x 96″	32.00	30 oz.	60″ x 96″	75.00
16 oz.	36″ x 120″	30.00	24 oz.	34″ x 96″	34.00	30 oz.	60″ x 120″	93.80
16 oz.	48″ x 72″	24.00	24 oz.	36″ x 72″	27.00	32 oz.	22″ x 96″	29.30
16 oz.	48″ x 96″	32.00	24 oz.	36″ x 96″	36.00	32 oz.	24″ x 48″	16.00
16 oz.	48″ x 120″	40.00	24 oz.	36″ x 120″	45.00	32 oz.	24″ x 96″	32.00
18 oz.	22″ x 96″	16.50	24 oz.	48″ x 72″	36.00	32 oz.	26″ x 96″	34.70
18 oz.	24″ x 48″	9.00	24 oz.	48″ x 96″	48.00	32 oz.	28″ x 96″	37.30
18 oz.	24″ x 96″	18.00	24 oz.	48″ x 120″	60.00	32 oz.	30″ x 60″	25.00
18 oz.	26″ x 96″	19.50	24 oz.	60″ x 96″	60.00	32 oz.	30″ x 96″	40.00
18 oz.	28″ x 96″	21.00	24 oz.	60″ x 120″	75.00	32 oz.	30″ x 120″	50.00
18 oz.	30″ x 60″	14.06	26 oz.	30″ x 96″	32.50	32 oz.	32″ x 96″	42.70
18 z.	30″ x 96″	22.50	26 oz.	36″ x 96″	39.00	32 oz.	34″ x 96″	45.30
18 oz.	30″ x 120″	28.12	28 oz.	22″ x 96″	25.70	32 oz.	36″ x 72″	36.00
18 oz.	32″ x 96″	24.00	28 oz.	24″ x 48″	14.00	32 oz.	36″ x 96″	48.00
18 oz.	34″ x 96″	25.50	28 oz.	24″ x 96″	28.00	32 oz.	36″ x 120″	60.00
18 oz.	36″ x 72″	20.02	28 oz.	26″ x 96″	30.30	32 oz.	48″ x 72″	48.00
18 oz.	36″ x 96″	27.00	28 oz.	28″ x 96″	32.70	32 oz.	48″ x 96″	64.00
18 oz.	36″ x 120″	33.75	28 oz.	30″ x 60″	21.90	32 oz.	48″ x 120″	80.00
18 oz.	48″ x 72″	27.00	28 oz.	30″ x 96″	35.00	32 oz.	50″ x 120″	83.33
18 oz.	48″ x 96″	36.00	28 oz.	30″ x 120″	43.80	32 oz.	60″ x 96″	80.00
18 oz.	48″ x 120″	45.00	28 oz.	32″ x 96″	37.30	32 oz.	60″ x 120″	100.00

Strip Copper — Cold Rolled Temper

For General Sheet Metal Work

Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet	Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet	Weight per Sq. Ft.	Size of Sheet	Estimated Pounds per Sheet
14 oz.	20″ x 96″	11.66	16 oz.	15″ x 96″	10.00	20 oz.	20″ x 96″	16.66
16 oz.	10″ x 96″	6.66	16 oz.	20″ x 96″	13.33	24 oz.	20″ x 96″	20.00
16 oz.	12″ x 96″	8.00	16 oz.	20″ x 120″	16.66	32 oz.	20″ x 96″	26.66
16 oz.	14″ x 96″	9.33	18 oz.	20″ x 96″	15.00			

WEIGHT PER SQ. FT.		Thickness in Inches	NEAREST GAUGE NO.		Nearest Fraction of an Inch
Ounces	Pounds		B & S	Stubs	
..	16	.345	00	0	11/32
..	15	.324	0	0	21/64
..	14	.302	1	1	19/64
..	13	.280	1	2	9/32
..	12	.259	2	3	17/64
..	11	.237	3	4	15/64
..	10	.216	4	5	7/32
..	9 ½	.205	4	6	13/64
..	9	.194	4	6	...
..	8 ½	.183	5	7	3/16
..	8	.173	5	7	11/64
..	7 ½	.162	6	8	...
..	7	.151	7	9	5/32
..	6 ½	.140	7	10	9/64
96	6	.129	8	10	1/8
88	5 ½	.119	9	11	...
80	5	.108	10	12	7/64
72	4 ½	.0972	10	13	3/32
64	4	.0863	11	14	...
56	3 ½	.0755	13	15	5/64
48	3	.0647	14	16	1/16
44	2 ¾	.0593	15	17	...
40	2 ½	.0539	16	17	...
36	2 ¼	.0485	16	18	3/64
32	2	.0431	17	19	...
28	1 ¾	.0377	19	20	...
24	1 ½	.0323	20	21	1/32
20	1 ¼	.0270	21	22	...
18	1 ⅛	.0243	22	23	...
16	1	.0216	23	24	...
15	15/16	.0202	24	25	...
14	7/8	.0189	25	26	...
13	13/16	.0175	25	26	...
12	3/4	.0162	26	27	1/64
11	11/16	.0148	27	28	1/64
10	5/8	.0135	27	29	...
9	9/16	.0121	28	30	...
8	1/2	.0108	29	31	...
7	7/16	.0094	31	32	...
6	3/8	.0081	32	33	...
4	1/4	.0054	35	35	...
2	1/8	.0027	41	..	...
..	...	...	..	..	...
..	...	...	..	..	...

FRACTIONAL INCH THICKNESS	
Thickness	Pounds per Sq. Ft.
1/16	2.90
1/8	5.80
3/16	8.69
1/4	11.6
5/16	14.5
3/8	17.4
7/16	20.3
1/2	23.2
9/16	26.1
5/8	29.0
11/16	31.9
3/4	34.8
13/16	37.7
7/8	40.6
15/16	43.5
1	46.4
1 1/16	49.3
1 1/8	52.2
1 3/16	55.1
1 1/4	58.0
1 5/16	60.9
1 3/8	63.8
1 7/16	66.7
1 1/2	69.6
1 9/16	72.4
1 5/8	75.4
1 11/16	78.2
1 3/4	81.1
1 13/16	84.0
1 7/8	86.9
1 15/16	89.8
2	92.7
...	...
...	...
...	...

Accepted Tolerance Practice

1. Scope

The practice set forth herein shall apply to both soft and cold rolled temper copper sheet and strip.

2. Thicknesses:

For determining tolerances the thickness of copper sheets and strips for general sheet metal purposes in building construction shall be taken as at 68 degrees Fahrenheit:

14-ounce	0.0189 in.
16-ounce	0.0216 in.

3. Weight Tolerances:

(a) Weight tolerances of copper sheet or strip shall be determined by case and crate lots and not by single sheets or strips.

(b) All case and crate lots of copper sheet or strip shall weigh not less than 95% nor more than 103% of the theoretical weight.

(c) Weight shall be based on case or crate lots containing not less than 500 lbs.

4. Single Strips:

The minimum thickness of any single sheet or strip at any single point shall be:

For 14-ounce	0.0160 in.
For 16-ounce	0.0190 in.

5. Gauging:

(a) For test of thickness, micrometer readings shall be made on 10% of the sheets or strips in each case or crate lot.

(b) Each sheet or strip selected shall be gauged at evenly spaced points along both edges, and in the center at both ends.

Copper Estimates for Roofing

In estimating the amount of sheet copper required to cover a given roof area, the type of roofing, size of sheets, size of seams, and size and spacing of cleats must all be considered. To facilitate estimates the approximate quantities resulting from the commonly used sheet sizes in the three different types of copper roofing have been tabulated in the table below.

The first column gives the square feet of copper required to cover an area of 100 square feet. The figures are based on 2″ x 2″ tapered battens, 1-inch finished standing seams and ¾-inch flatlock seams.

The amount for cleats given in the second column assumes a spacing of 12 inches for batten and standing seam roofing, and two cleats on the long sides and two on the short sides of the sheets in the flat-seam construction, except for the 14″ x 20″ sheets where only one cleat is used on the short side. Cleats are assumed 2 inches.

The third column gives the total square feet of sheet copper required per roofing square. These totals can be used as percentages that, applied to the total square feet of roof to be covered, will give the square feet of copper required.

The last column gives the quantity of 1-inch nails required, assuming two nails per cleat and 292 nails per pound.

Approximate Material Quantities Per Roofing Square (100 Sq. Ft.)

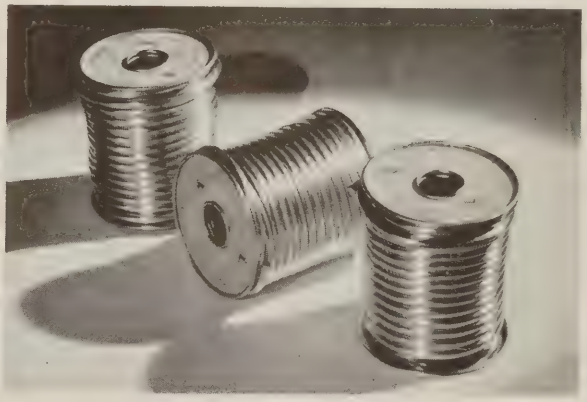
Kind of Roofing	Copper Sheets Sq. Ft.	Copper Cleats Per Sq. Ft.	Total Sheet Copper Per Sq. Ft.	1 Inch Nails Lbs.
Batten seam—20″ x 96″ sheets	145	6	151	1
Batten seam—24″ x 96″ sheets	137	5	142	1
Batten seam—30″ x 96″ sheets	129	4	133	¾
Standing seam—20″ x 96″ sheets	123	4	127	⅔
Standing seam—24″ x 96″ sheets	119	3	122	½
Flat-seam—14″ x 20″ sheets	121	9	130	1⅓
Flat-seam—16″ x 18″ sheets	121	12	133	1⅔
Flat-seam—16″ x 20″ sheets	119	10	129	1½
Flat-seam—18″ x 24″ sheets	116	8	124	1

Solder in Bars

Chase Tin and Lead Solder is available in Bars in different mixtures for various purposes. The following grades are ordinarily carried in stock: Chase Best Solder (50-50), Chase Solder (40-60), Chase Best Capping Bar Solder (50-50).

Solder in Spools

Chase Tin and Lead Solder is available in 1 lb. spools in three mixtures: Chase Special Solder (95-5), Chase Best Solder (50-50), Chase Solder (40-60).



Copper Hammers

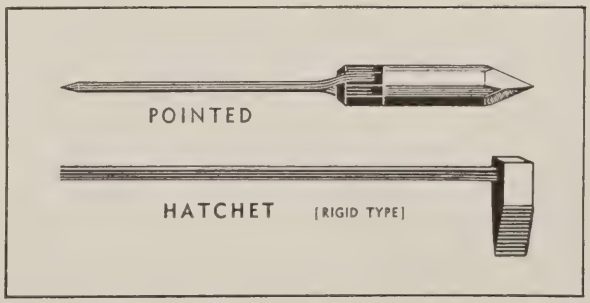
Usually carried in stock in the following weights per hammer (without handles): ½ lb., ¾ lb., 1 lb., 1½ lbs., 2 lbs., 2½ lbs., 3 lbs., 4 lbs., 5 lbs., 6 lbs., 8 lbs., 10 lbs.

Chase Soldering Coppers

Made from copper which will withstand high temperatures before scaling. Clincher type iron handles.

Pointed Patterns: Recommended for all-around work. Available in sizes from 1 lb. and heavier per pair.

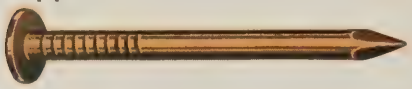
Hatchet Patterns: Recommended for places where the seams cannot be conveniently reached with a straight type copper. Furnished with rigid handles and in sizes from 1 lb. and heavier per pair.



Copper Wire and Cut Nails

Chase Copper Wire and Cut Nails are available in a large variety of types and sizes. There is a Chase nail to fill practically every need of the roofer. Chase nails have heads and shanks of a uniform size and they drive straight and true because the head is well centered.

Copper Wire Nails



Chase Copper Wire Nails are available in many standard and special sizes. They are the same shape as the common steel nail. They have a flat head and a diamond point and are recommended for general usage where a non-rusting corrosion-resistant nail is required.

Cut Copper Clout Nails

Clout Nails have a flat head and the same holding advantages as the regular cut copper nail. However, in some cases, Clout Nails are preferred because they have slender shanks that drive through thin boards easily and the points can be bent over (clinched) without splitting the wood after the nail is driven.

Copper Storm Nails

This nail has a large octagonal head made of copper strip that is strong and rigid. The head is also dished so that it will set flat and firmly against the sheathing. Storm Nails are carried in stock in ¾" length with No. 14 Stubs Gauge Shanks. These shanks are clenched securely into the center of the head so they won't break loose.

Copper Wire Slating or Roofing Nails

Chase Copper Wire Slating or Roofing Nails are available in nine standard sizes and many special sizes. They have a large flat head and a diamond point. The large head prevents the metal from pulling over the nail head. These nails are generally used on shingle, slate and other roofing and sheet metal work.

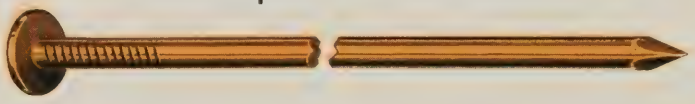
Regular Cut Copper Nails

Chase Cut Copper Nails are stamped out of sheet metal. They have two or three times the holding power of wire nails because the ragged rough edges of the shanks cut through the wood fiber, the round shank of a wire nail spreads the fiber.

Cut Sheathing Nails

Chase Cut Sheathing Nails are available in copper and yellow metal — 1", 1⅛" and 1¼" long.

Gutter Spikes for Box Gutters



Oval and Flat Head Copper Gutter Spikes are available in the following sizes: ¼" diameter 6" and 7" long, $\frac{3}{16}$" diameter 7" long, No. 5 gauge 8" long.

Brass or Bronze Cut Nails

These nails are recommended where considerable holding power is required. For example Cut Brass or Bronze Nails are recommended for fastening slate or tile over a Gypsum Base. Gypsum is a tough composition board that takes a much harder nail than pure copper.

Siding Nails for Asbestos Shingles

Siding nails for asbestos shingles are made of brass, .083" diameter and are tin plated. They are annular threaded in sizes ⅞", 1", 1¼", 1½", 1¾" and 2" and are available with either plain or checkered heads. The checkered heads match the general appearance of asbestos shingles.

Special Nails

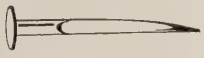
Special lengths, gauges, heads and points can be made to order. Also nails with cement coating and special barbing can be furnished. Information on any special nail will be furnished on request.

Approximate Number to the Pound

Cut Copper Nails

Dwt.	Length in Inches	No. to the Lb.
..	5/8	1112
..	3/4	928
..	7/8	644
2d	1	512
3d	1 1/4	240
4d	1 1/2	176
5d	1 3/4	128
6d	2	96
7d	2 1/4	82
8d	2 1/2	58
9d	2 3/4	49
10d	3	38
12d	3 1/4	35
16d	3 1/2	32
18d	3 3/4	28
20d	4	24
30d	4 1/2	17
40d	5	16
50d	5 1/2	12
60d	6	9

Cut Copper Tacks



Oz.	Length in Inches	No. to the Lb.
1	3/16	7000
1 1/2	7/32	6100
2	1/4	5200
2 1/2	5/16	4600
3	3/8	2900
4	7/16	2075
6	1/2	1650
8	9/16	1280
10	5/8	1000
12	11/16	840
14	3/4	760
16	13/16	680
18	7/8	570
20	15/16	510
22	1	420
24	1 1/8	360
26	1 1/4	280
30	1 1/2	240

Copper Storm Nails

3/4" long No. 14 Gauge
274 to the lb.

Copper Wire Nails

(Order by Length and Gauge)

Dwt.	Length in Inches	Stubs' Gauge	No. to the Lb.	Std. Head Dia.	Max. Head Dia.
..	5/8	16	1380	5/32	13/64
..	3/4	14	768	13/64	1/4
..	3/4	15	956	11/64	7/32
..	3/4	16	1160	5/32	13/64
..	7/8	14	680	13/64	1/4
..	7/8	15	808	11/64	7/32
..	7/8	16	1093	5/32	13/64
2d	1	15	704	11/64	7/32
..	1 1/8	12	556	17/64	25/64
..	1 1/4	10	174	21/64	1/2
..	1 1/4	11	207	19/64	7/16
..	1 1/4	12	304	17/64	25/64
3d	1 1/4	14	424	13/64	1/4
..	1 1/4	15	617	11/64	7/32
..	1 1/2	8	112	27/64	1/2
..	1 1/2	11	178	19/64	7/16
4d	1 1/2	12	208	17/64	25/64
..	1 1/2	13	274	15/64	5/16
..	1 3/4	11	144	19/64	7/16
5d	1 3/4	12	180	17/64	25/64
..	2	8	71	27/64	1/2
..	2	9	106	3/8	1/2
..	2	10	106	21/64	1/2
6d	2	11	130	19/64	7/16
..	2	12	170	17/64	25/64
..	2 1/4	9	77	3/8	1/2
7d	2 1/4	11	131	19/64	7/16
..	2 1/2	8	58	27/64	1/2
8d	2 1/2	10	88	21/64	1/2
..	2 1/2	11	108	19/64	7/16
..	2 3/4	10	73	21/64	1/2
..	3	8	38	27/64	1/2
10d	3	9	56	3/8	1/2
16d	3 1/2	8	40	27/64	1/2
20d	4	6	23	33/64	9/16
..	4	8	22	27/64	1/2
30d	4 1/2	5	18	17/32	5/8
..	4 1/2	6	9	33/64	9/16
40d	5	4	14	35/64	5/8
60d	6	2	8	5/8	5/8

Copper Wire Roofing or Slating Nails

For Slate work, use heavier gauge

Length in Inches	Stubs' Gauge	No. to the Lb.	Std. Head Dia.	Max. Head Dia.
7/8	12	332	11/32	25/64
1	12	292	11/32	25/64
1 1/4	10	164	25/64	1/2
1 1/4	11	208	23/64	7/16
1 1/4	12	240	11/32	25/64
1 1/2	10	132	25/64	1/2
1 1/2	11	164	23/64	7/16
1 1/2	12	204	11/32	25/64
1 3/4	10	116	25/64	1/2
1 3/4	11	147	23/64	7/16
1 3/4	12	176	11/32	25/64
2	9	90	7/16	1/2
2	10	108	25/64	1/2
2	11	121	23/64	7/16
2	12	158	11/32	25/64
2 1/2	10	94	25/64	1/2
2 1/2	11	102	23/64	7/16
2 1/2	12	124	11/32	25/64
3	10	74	25/64	1/2
3	14	207	15/64	1/4

Cut Copper Roofing Nails

Dwt.	Length in Inches	No. to the Lb.
3d	1 1/4	190
4d	1 1/2	135

Cut Copper Clout Nails

Dwt.	Length in Inches	No. to the Lb.
..	3/8	2910
..	1/2	1636
..	5/8	1112
..	3/4	928
..	7/8	644
2d	1	512
..	1 1/8	456
3d	1 1/4	338
4d	1 1/2	220
5d	1 3/4	175
6d	2	125
8d	2 1/2	72

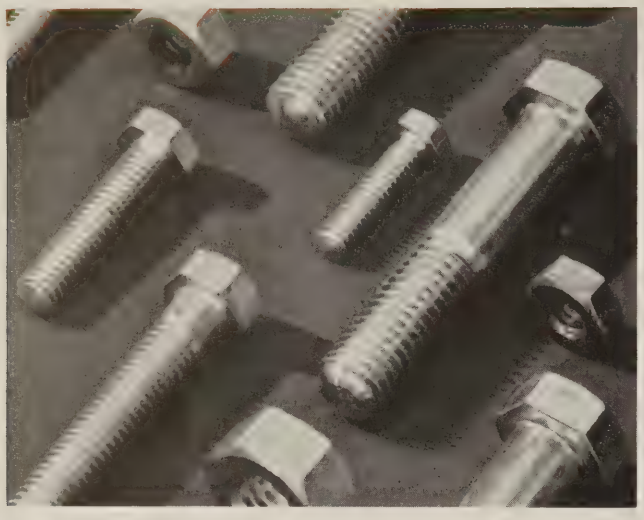
Cut Copper Sheathing Nails

Dwt.	Length in Inches	No. to the Lb.
2d	1	208
..	1 1/8	181
3d	1 1/4	152

Annular Threaded Nails

Length in Inches	No. to the Lb.
7/8	547
1	516
1 1/4	453
1 1/2	365
1 3/4	328
2	285

The approximate number of commercial bronze nails is the same as the weights given for copper nails. For brass and silicon bronze nails, add 5% to the number of copper nails.

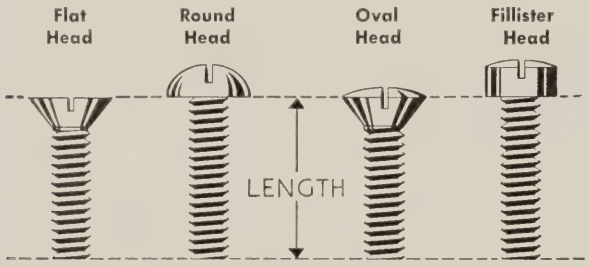


Chase Brass and Bronze Screws, Bolts and Nuts

A wide range of Brass and Bronze Screws, Bolts and Nuts can be obtained quickly from our Chase Warehouses. These stocks usually include wood screws, machine screws, machine bolts, lag screws, carriage bolts and cornice bolts in standard threads and sizes. Also, nuts are normally carried in stock to fit machine, stove and cornice bolts.

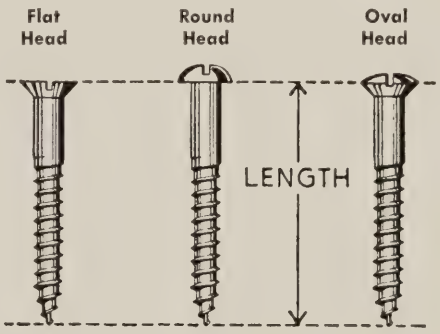
Brass Machine Screws

For drilled and tapped holes when assembling metal parts, size is specified by length in inches, and diameter (less than ¼") in numbers of the American Screw Gauge. For ¼" and longer diameters are specified in fractions of an inch.



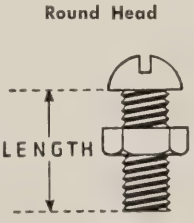
Brass Wood Screws

Available in flat, round and oval heads. Size is specified by length in inches and diameter in numbers of the American Screw Gauge. All wood screws come one gross to a package.



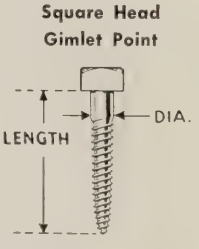
Brass Cornice or Stove Bolts and Nuts

Available in flat head and round head types and in standard sizes. The bolt diameter is the largest diameter dimension of the shank. Length of bolt refers to distance from under the head to the end of the bolt. Standard Hexagon nuts are available for all brass cornice bolts.



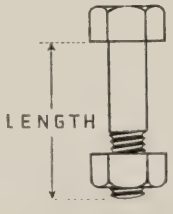
Naval Lag or Coach Screws

Naval Lag Screws are available in a large variety of standard sizes. They are square-headed and have a gimlet point. The diameter refers to the diameter of the screw at the unthreaded part and the length is the distance from directly under the head to the point of the screw. Lag screws are available in bulk.



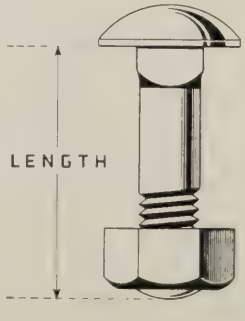
Naval Brass Machine Bolts and Nuts

With hexagon head and with hexagon nuts, length refers to distance under head to end of bolt. Diameter in Hexagon refers to diameter of threaded shank. Brass machine bolts and nuts are available in bulk.



Naval Brass Carriage Bolts and Nuts

Naval Brass Carriage Bolts are square under the head as illustrated. They are available in diameters from ¼" to ⅝" inclusive and in lengths 1½" to 10" inclusive. The threads are American Standard Coarse Series. Hexagon nuts for carriage bolts are supplied as follows: diameters ½" and smaller, the nuts are milled from bar stock. On ⅝" diameter bolts, cast nuts are used.



Coarse Threads

We usually carry larger stocks of coarse threads since they are recommended by the National Screw Thread Commission as being more commonly used.

Chase Copper and Brass Rivets, Burs and Washers

Clean, smooth and uniform, Chase copper and brass rivets, burs and washers are available in bulk and in attractive 1 pound and 5 pound packages. On this page we have illustrated the items that are most generally used by the roofing and sheet metal industry and they are usually available for immediate shipment from Chase warehouse stocks. In addition we can give you good service on practically any special rivet made to your specifications.

Sizes and Count

COPPER TINNERS' RIVETS — FLAT HEAD

Size	½ lb.	¾ lb.	1 lb.	1¼ lb.	1½ lb.	2 lb.	2½ lb.	3 lb.	3½ lb.	4 lb.	5 lb.	6 lb.	7 lb.	8 lb.	9 lb.	10 lb.
Diameter of Shank	.092″	.101″	.115″	.120″	.125″	.140″	.148″	.160″	.163″	.173″	.186″	.200″	.215″	.225″	.233″	.238″
Length under Head	5/32″	3/16″	13/64″	7/32″	15/64″	17/64″	9/32″	5/16″	21/64″	11/32″	3/8″	25/64″	13/32″	7/16″	29/64″	15/32″
Diameter of Head	3/16″	7/32″	1/4″	17/64″	9/32″	5/16″	21/64″	11/32″	23/64″	3/8″	13/32″	7/16″	31/64″	1/2″	33/64″	17/32″
Approximate No. per Pound	1850	1250	850	740	650	450	375	300	275	230	180	150	140	120	110	100

COPPER AND BRASS RIVETS — ROUND HEAD

Length under Head, Inches			COPPER												BRASS									
			3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/2	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2
Diam. Head	Thick. Head	Diam. Shank	Approximate number per pound																							
7/64	3/64	1/16	3700	3000	2600	2200	1750										4720	3712	3000	2379	2200	1750					
5/32	5/64	3/32	1250	1000	985	870	700	625	520		410							1250	1100	985	870	700	625	410			
7/32	3/32	1/8	736	572	495	468	392	306	270		210						928	742	644	546	480	414	352	300	223		
21/64	9/64	3/16		204	174	166	138	124	110	97	90	73	62						206	189	171	141	127	118	85	77	67
7/16	3/16	1/4				81	75	67	57	51	46	40	33	29	27							77	65	60	47	39	34
35/64	15/64	5/16					43	37	33	31	29	24	21														
21/32	9/32	3/8					29	23	21		18	16	14		11	9											
7/8	3/8	1/2									9		7	6	6												

COPPER BRAZIERS RIVETS — OVAL HEAD

Length under Head, Inches	5/16	3/8	1/2	1/2	5/8	11/16	3/4	13/16	15/16	1 1/8	1 1/4	1 1/4
Size or Number	00	0	1	2	3	4	5	6	7	8	9	10
Diameter of Head, Inches	7/16	1/2	5/8	23/32	3/4	7/8	15/16	1	1 1/8	1 1/4	1 3/8	1 1/2
Diameter under Head, Inches	11/64	3/16	1/4	9/32	19/64	11/32	23/64	25/64	7/16	17/32	5/8	21/32
Diameter Tip of Shank, Inches	5/32	11/64	7/32	13/64	17/64	5/16	11/32	23/64	25/64	1/2	19/32	5/8
Approximate Number per Lb.	224	138	65	45	38	25	20	17	13	7	5	4½

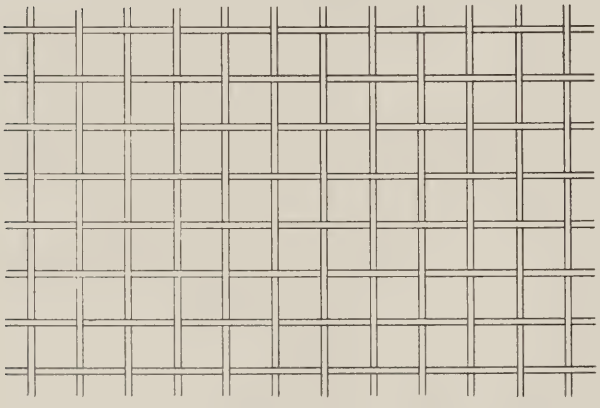
COPPER BRAZIERS RIVETS — FLAT HEAD

Length under Head, Inches			½	¾	1	1¼	1½	2
Diameter of Head	Thickness of Head	Diameter of Shank	Approximate number per pound					
23/32	7/64	1/4	52	48	36	32	30	22
3/4	9/64	5/16		26	24	21	17	15
7/8	.140	3/8			17	15	12	10

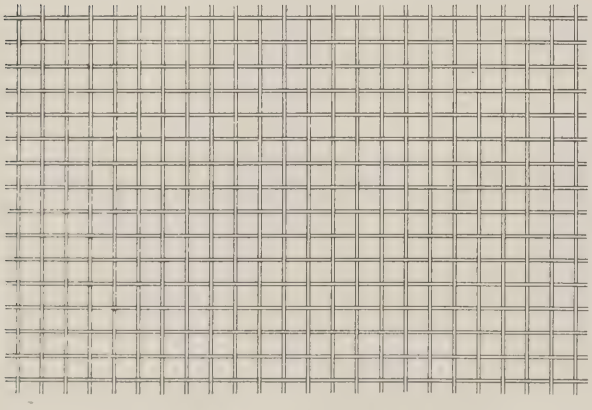
COPPER BURS ONLY

Size or No.	3	4	5	6	7	8	9	10	11	12	13	14	15	16
O. D., Inches	.922	.875	.813	.656	.500	.469	.438	.406	.391	.360	.344	.313	.281	.250
I. D., Inches	.290	.256	.223	.206	.176	.166	.146	.138	.128	.124	.106	.093	.086	.067
Thickness, Inches	.081	.071	.064	.057	.051	.045	.040	.036	.031	.028	.025	.022	.020	.018
Approx. number per Lb.	64	76	102	184	380	465	580	750	950	1240	1350	2050	2950	3825

2 Mesh (center to center)



4 Mesh (center to center)

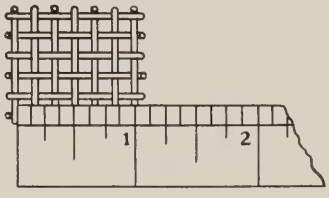


8 Mesh (center to center)

Brass and Copper Wire Cloth

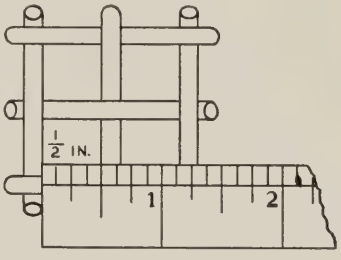
Brass and Copper wire cloth is normally carried in stock ready for immediate shipment. Large quantities are used by the Roofing and Sheet Metal Industries for skylight guards, gutter guards, ventilator guards, vents, fresh air intakes, screening of louvers, and for rat-proofing storage bins, cellar windows and other openings near the ground.

Brass and Copper wire cloth has its advantages over other types of wire because it will resist rust during long periods of dampness. It also has unusual resistance to corrosive fumes sometimes present in vents.



Mesh

Mesh in wire cloth is the number of openings per lineal inch. To count the number of openings in an inch, measure from the center of a wire to a point 1 inch distant. For example, 4 mesh should count 4 openings to the inch.



Space

The actual openings between the wires are known as "space." Where the mesh is specified in fractions of an inch such as ¼" space, is it understood to mean a ¼" opening between the wires.

Special Sizes

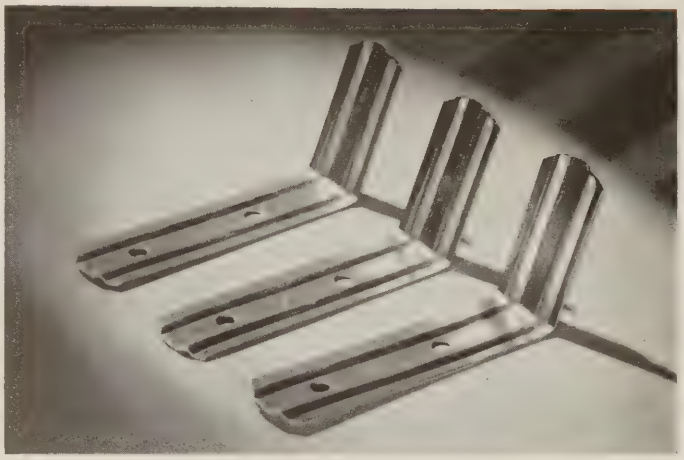
In addition to the meshes illustrated, we can also furnish all popular meshes from No. 8 to No. 100 inclusive. We will be glad to send you further information on receipt of specifications.

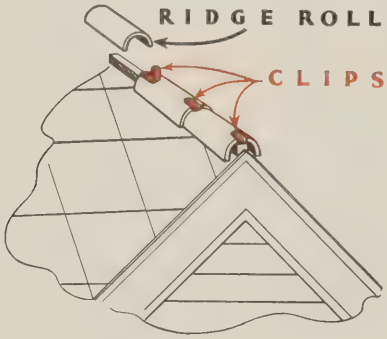
Table of Information (subject to commercial tolerances)

Stock Widths	Mesh Center to Center	Diameter of Wire	Width of Opening	Percentage of Open Area	Std. Wts. in Lbs. per 100 Sq. Ft.
24", 30", 36"	2	.063	.437	76.4%	58
24", 30", 36"	4	.047	.203	65.9%	65.3
24", 30", 36"	8	.028	.097	60.2%	46.6

Copper Ridge Roll Clips

Chase Ridge Roll Clips are used to fasten down tile and asbestos ridge roll. Ridge Roll is laid in short lengths. As each length is laid, one end overlaps for about one inch the piece that was laid just before it. The base of the Ridge Roll Clip is nailed with two shingle nails to one end of each ridge roll and the short angular end of the clip is bent back to hold down the overlapping end of the ridge roll. Chase Ridge Roll Clips are made out of No. 25 gauge copper and are 3⅛" long overall and ⅝" wide.





CHASE

23 Warehouse Stocks

When you need brass, copper, or bronze, Chase Warehouse Service can usually give you what you want, when you want it. There are twenty-three Chase quick-delivery warehouses and four sales offices located in key cities from coast to coast. A brief list of Chase brass and copper products appears on the next page.

Stocks in these Chase warehouses are kept up-to-date by large Chase mills in Waterbury, Connecticut and Cleveland, Ohio. That's why you can usually get quick delivery of the exact size, temper, or finish. Remember, if you need brass or copper, and quick service too — call the Chase warehouse nearest you.

Warehouses: Atlanta - Baltimore - Boston - Chicago - Cincinnati - Cleveland - Dallas - Detroit - Indianapolis Kansas City - Los Angeles - Milwaukee - Minneapolis - Newark - New Orleans - New York - Philadelphia Pittsburgh - Providence - St. Louis - San Francisco - Seattle - Waterbury

Offices: Albany, N. Y. - Denver, Colo. - Houston, Texas - Rochester, N. Y.

Chase Products Include

Our principal mill products are brass and copper sheet, rod, wire, pipe, tube, and industrial and architectural shapes, but we also sell many other copper alloy items.

The list below gives an idea of the wide range of brass, copper and bronze products handled by our mills and 23 warehouses located in large industrial cities.

ANGLES AND CHANNELS
AUTOMOTIVE TUBE AND FITTINGS
BEARING BRONZE
BOLTS AND NUTS
BRASS AND COPPER PIPE
CHAMET BRONZE
CONDENSER PLATES
CONDENSER TUBE
COPPER ANODES
COPPER BUS BAR
COPPER LEADERS AND GUTTERS
COPPER ROOFING ACCESSORIES
COPPER THRU-WALL FLASHING
COPPER WATER TUBE
COTTER PINS
DOOR SADDLES
ESCUTCHEON PINS
EXTRUDED SHAPES
FLOOR DIVIDING STRIP
KICK PLATES
MAGNET WIRE
NAILS AND TACKS
OLYMPIC BRONZE
PERFORATED METAL
RAILINGS AND FITTINGS
RIVETS AND BURS
ROD AND WIRE
SCREEN CLOTH
SEAMLESS TUBE
SHEET AND STRIP
TUBE FITTINGS
WIRE CLOTH

Chase Literature

We shall be glad to send you any of the following publications in which you may be interested, provided they are available when requested.

Chase Warehouse Stock Book and Catalog

Chase Commercially Important Alloys

Chase Free-Cutting Brass, Bronze, Copper

Chase Condenser and Heat Exchanger Tubes

Chase Dictionary of Brass & Copper Terms

Chase Architectural Bronze Extruded Shapes

Chase Tellurium Copper

Chase Solder-Joint and Flared Copper Tube Fittings

Chase Brass & Copper Wire Cloth

Chase Embossed Sheet Metal

Chase Brass & White Metal Floor Dividing Strips

Chase Electrical Handbook

Chase Cold-Heading Wire

Chase Radiant Heating Manual

Chase Telnic Bronze

Chase Phosnic Bronze

Chase Phosphor Bronzes

Chase Brass and Bronze Tubular Railings & Accessories

Chase Bronze Insect Wire Screening & Brass & Copper Wire Cloth

Chase Rivets, Burs, Washers

Chase Thru-Wall Copper Flashing

Chase Copper Roofing and Roofing Products

Chase Automotive and Industrial Fittings

Brass and Copper in Your Home — Radiant Heating — Plumbing — Roofing — Screening

Radiant Heating for Brooder Houses

82 Questions and Answers about Radiant Heating

Chase Copper Tube and Solder-Joint Drainage Fittings for Soil, Waste and Vent Lines

Chase Brass & Copper Pipe, Copper Water Tube and Fittings

Chart: Table of Weights Per Linear Foot of Chase Free-Cutting Brass Rod and Bar, and Net Extras in Cents Per Pound

Chart: Fractions of an Inch and Decimal Equivalents; Standard Decimal Equivalents In Inches For Various Gauges

Chart: Chase Free-Cutting Copper Alloys (Data Chart)

Chart: Sheet, Roll and Strip Copper — Table of Weights

Chase Copper Nails & Tacks

Chase Square Copper Tube Bus Conductors

Kennecott Telephone Cable

Kennecott Magnet Wire

Kennecott Wire and Cable (Bare Copper Wire & Cable, Copperweld-Copper Conductors, Weatherproof Wire & Cable, Slow-Burning Wire & Cable, Trolley Wire)

Kennecott Wire and Cable (Paper Insulated Power Cable; Varnished Cambric Wire & Cable)

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CHASE BRASS & COPPER CO. — INCORPORATED — **WATERBURY, CONN.**

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